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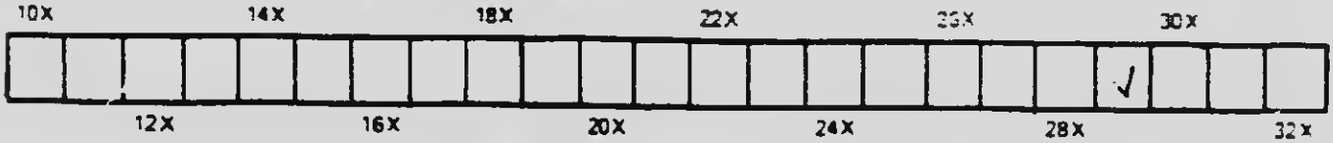

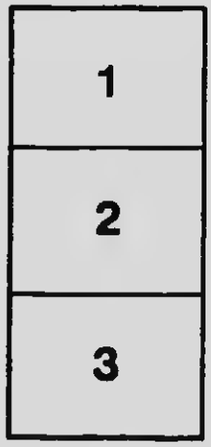

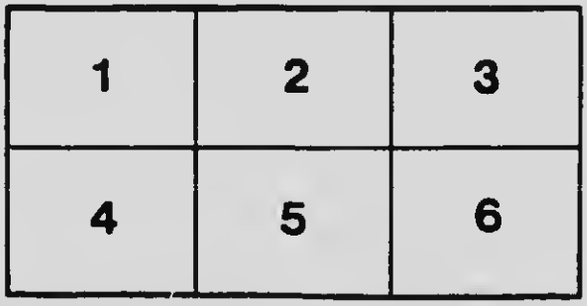

DIRECTORY OF
BUILDING SUPPLIES

SPECIFICATION DATA

SUPPLEMENT
1914

PUBLISHED BY SPECIFICATION DATA, LIMITED
HEAD OFFICE: 34 MELINDA ST., TORONTO, CANADA

Grouped Catalogue of Building Trades in One Volume

SPECIFICATION DATA

SUPPLEMENT

1914

Indexed According to Trades for
Building Construction

Devised, Compiled and Edited by

Specification Data, Limited

Head Office: 31 Melinda Street
Toronto, Canada

190398

INTRODUCTION

CATALOGUES in some form or other are indispensable to the Builder and Contractor, and any scheme that tends to improve or solve the catalogue problem will be a boon to them as well as the manufacturers who publish same.

In publishing the third edition of the **"Supplement"** to our **"Specification Data,"** which is now so well-known throughout the Architectural and Engineering communities of Canada, the publishers feel they have succeeded in creating a medium whereby the person who purchases building materials may have constantly before him that vital information which is so essential to him at the time he so urgently requires it.

The advertisements contained herein, which are drawn up in a purely technical manner, are identical with those contained in our **"Specification Data,"** in the hands of the Architectural and Engineering professions. This arrangement will be readily appreciated, as any material specified by an Architect can be immediately traced by the Builder or Contractor in his **"Supplement"** co

The publishers have endeavoured, so far as [illegible]ly could to bring this **"Supplement"** entirely within the scope of the Builder and Contractor. It embraces every trade entering into the construction of a building. The advertisements are drawn up in a technical manner and are very comprehensive in their Careful consideration has been given to the presentation of practical details sary pictures and display type have been entirely avoided. The Builder and tor has, therefore, before him a medium by which he can obtain competitive pric on practically every building material known. He obtains the information he desires moment's notice.

Builders and Contractors who find the work useful can he[lp] ke[ep] it more complete, not only by sending information of a technical character and d but by letting the advertisers know the book is approved of by them, and in t[he] so the publishers earnestly solicit the valued co-operation of Builders an mentioning "SPECIFICATION DATA" when specifying therefrom.

The

NOTE.—A feature which should prove mutually profitable both to the Builder and Contractor on the one hand, and the advertiser on the other, is the establishment of a well equipped Information Bureau at the Head Office of the publishers. This Information Bureau contains the catalogues of all the leading manufacturers of building materials and equipment, together with prices and information of all kinds. This department is at the free disposal of Builders and Contractors, who are cordially invited to send in their enquiries when desiring information on any building material which may not be fully listed in this volume. Should such information not be immediately available upon receipt of the enquiry, the publishers will obtain same and forward it without delay. No enquiry is too small to receive attention, as it is the publishers' aim to make this Information Bureau of practical and definite value to the users of **"Specification Data."**

KINDLY NOTE

This **"Supplement"** is sub divided according to trades and follows the same sequence as our loose-leaf **"Specification Data."** These sub divisions run, according to their respective folios, as follows

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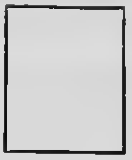

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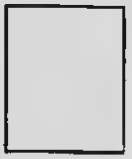

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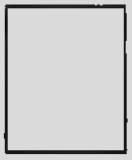

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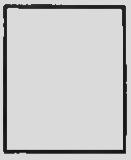

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Watson, Ltd
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Clarence E. Poston
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Sun Brick Co., Ltd
Toronto Clay Products, Ltd
Waite Fullerton Co., Ltd

Brick Enamelled
American Enamelled Brick and Tile Co.
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Hydraulic Press Brick Co.
National Builders Supply and Enamel Co.
Ontario Brick Co., Ltd
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Columbus Brick and Terra Cotta Co.
Don Valley Brick Works
Hydraulic Press Brick Co.
Wm. N. O'Neil Co., Ltd
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Canadian H W Johns Manville Co Ltd

Doors Bronze

Architectural Bronze and Iron Work
Canadian Allis Chalmers Ltd
Clare Bros & Co Ltd
Dennis Wire & Iron Work Co Ltd
Dominion Ornamental Iron Co Ltd
Esley Bros Company
E T Fonger & Co Ltd
Robert Mitchell Co Ltd
Wm N Neil Co Ltd
Smart & Co Iron Work
Thorp Universal Door Co
Vortex Mfg Co
John Watson & Son of Montreal Ltd

Doors Iron

Architectural Bronze and Iron Work
Canadian Allis Chalmers Ltd
Dennis Bridge & Iron Work
Esley Bros Company
A H Connolly Co Ltd
Vortex Mfg Co
E T Wellington Mfg Co

Doors Metal, Fireproof

Architectural Bronze and Iron Work
Canadian Allis Chalmers Ltd
Canadian Ornamental Iron Co Ltd
Dennis Bridge & Iron Work
Dennis Wire & Iron Work Co Ltd
Dodds & McCulloch Co Ltd
Kawneer Mfg Co
Manitoba Bridge and Iron Work Ltd
Wm N Neil Co Ltd
A H Ormsby Co Ltd
Pedlar People Ltd
Geo W Reed & Co Ltd
Steel and Radiation Ltd
Simpson-Boyd Builders Supply Co Ltd
T & T Taylor Ltd
Thorp Universal Door Co
Vortex Mfg Co
Winnipeg Cooling and Rooms Co Ltd

Doors Revolving

A H Connolly Co Ltd
Bell Manufacturing Hardwood Co Ltd

Doors Screen

William Bain & Co Ltd
Watson, Jelly & Co Ltd
Wood, Vallance & Supple Co Ltd

Doors Steel, Rolling

Kawneer Mfg Co Ltd
A B C Quick Co Ltd
Vortex Mfg Co
John E Wilson Mfg Co

Doors Wood

Bates Ltd
Brighton-Baldwin Mfg Co Ltd
Canada Lumber Co Ltd
Cushing Bros Co Ltd
Knight Bros Co Ltd
Wm N Neil Co Ltd
E H Peters, Limited
Rat Portage Lumber Co Ltd
Rhodes Curry Co Ltd

Drainers Cellar

Chill Dor
Standard Ideal Co Ltd

Draperies Furnishings

Thornton Smith Co

Drill Rock

Canadian Allis Chalmers Ltd

Drinking Fountains Bronze Cast Iron

Architectural Bronze and Iron Works of Canadian Allis Chalmers Ltd
Geo Carpenter
Dennis Wire & Iron Works Co Ltd
Dominion Ornamental Iron Co Ltd
Esley Bros Company
Warden King, Ltd

Drinking Fountains Marble

Missisquoi Marbles Ltd
Smith Marble & Construction Co Ltd

Drinking Fountains Porcelain Enamelled

Chill Dors
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Dry Cell Batteries

Canadian Independent Telephone Co

Dryers

Canadian Rotary Dryer & Heating Co
International Varnish Co Ltd
Le Roi Gasoline Engine Co
Lowe Bros Ltd
Pinchin Johnson & Co (Canada) Ltd
Pratt & Lambert Inc

Drying Appliances

Canadian Rotary Dryer & Heating Co Ltd
Chilton Ltd
E H Tool Co

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Canadian Rotary Dryer & Heating Co Ltd
Chilton Ltd

Dye Kiln Door Carriers

Wm N Neil Co Ltd
A H Ormsby Co Ltd
Vortex Mfg Co
E T Wellington Mfg Co

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E H Tool Co

Dumb Waiters

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E H Peters, Limited
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Canadian H W Johns Manville Co Ltd
Dillon and Oliver Co Ltd
Robert Mitchell Co Ltd
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Electric Lamps Tungsten

Frank Adam Electric Co
Canadian General Electric Co Ltd
Canadian H W Johns Manville Co Ltd

Electric Machinery

Canadian General Electric Co Ltd
E H Tool Co

Electric Marble

Frank Adam Electric Co
Hodge Marble Co Ltd
Missisquoi Marbles Ltd
Smith Marble and Construction Co Ltd

Electric Pole Brackets

Canadian General Electric Co Ltd
Dennis Wire & Iron Works Co Ltd
E H Gaudet & Co Ltd
Robert Mitchell Co Ltd

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Electric Wiring Contractors

Canadian General Electric Co Ltd
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Clare Bros & Co Ltd
Dennis Wire & Iron Works Co Ltd
Esley Bros Company
E H Gaud & Co Ltd
Robert Mitchell Co Ltd

Elevator Cabs

E T Wellington Mfg Co

Elevators Electric and Hydraulic

Otis & Mackenzie Co Ltd
Otis-Fensom Elevator Co Ltd
Turnbull Elevator Co Ltd
Waterous Ltd

Elevator Enclosures

Canadian Allis Chalmers Ltd
Dennis Wire and Iron Works Co Ltd
Dominion Architectural Iron Works
Dominion Ornamental Iron Co Ltd
E T Fonger & Co Ltd
E H Gaudet & Co Ltd
Otis-Fensom Elevator Co Ltd
Wm N Neil Co Ltd
Ontario Wind Engine & Pump Co Ltd
E H Peters, Limited
Smart & Co Iron Work Ltd
Turnbull Elevator Co Ltd
John Watson & Son of Montreal Ltd

Elevator Door Locks

Dominion Radiator Co Ltd

Enamelled Brick

Alexandra Enamel Co Ltd
Don Valley Brick Works
Hydraulic Press Brick Co
Toronto Roofing & Paving Co Ltd
White Enamelled Brick Co Ltd

Enamel Aluminum

International Varnish Co Ltd
Lowe Bros Ltd
Sherwin-Williams Co of Canada Ltd

Enamels

Lowe Bros Ltd
Pratt & Lambert Inc
Sherwin-Williams Co of Canada Ltd

Enamels Cornice

Metallic Cornice Co
Pinchin Johnson & Co (Canada) Ltd
Pratt & Lambert Inc
Sherwin-Williams Co of Canada Ltd
Toronto Corrugated Steel Co (1914) Ltd

Engineering Supplies

Conduits Co Ltd
Dominion Radiator Co Ltd
Dodds & McCulloch Co Ltd
Kelly Electric Co Ltd
Robert Mitchell Co Ltd
Peter Pommier Co Ltd
Steel and Radiation Ltd
Taylor-Forbes Co Ltd
E H Tool Co

Engineering Supplies Rubber

Canadian H W Johns Manville Co Ltd

Engines Gasoline

Wortington Bros

Engines Steam

Canadian Allis Chalmers Ltd
Canadian Fairbanks Morse Co Ltd
Dodds & McCulloch Co Ltd
John Inglis Co Ltd
Dillon and Oliver Co Ltd
Shibbons Ltd
E H Tool Co
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Exhaust Fans

Canadian Fairbanks Morse Co Ltd
Canadian Rotary Dryer & Heating Co Ltd
Dodds & McCulloch Co Ltd
Geo W Reed & Co Ltd
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Canadian Fairbanks Morse Co Ltd
Chicago Bridge & Iron Works
Dominion Radiator Co Ltd
Peter Pommier Co Ltd
Polson Iron Works Ltd
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Canadian Steel Shibbons & Mfg Co
Church, Ross & Co
E H Gaudet & Co Ltd
Manitoba Bridge and Iron Work Ltd
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Canadian Office & School Furniture Co., Ltd. 89
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E. G. CULLEN

IMPORTER AND MANUFACTURERS' AGENT,

326 DRAKE STREET,

VANCOUVER, B.C.

ARCHITECTURAL TERRA COTTA.

BRICK. Representing Coast Clay Company, Bellingham, Washington.
Denver Pressed Brick Co., Denver, Col.

BUILDING DIRECTORIES. Representing C. M. Kinney Co
Successors to U. S. Changeable Sign Co., New York City.

DOORS ELEVATOR, KALAMEINED, TIN CLAD.
Representing The B. C. Ceiling and Roofing Co., Ltd., Vancouver, B.C.

DOORS WOOD (ROLLING), STEEL.
Representing Jas. G. Wilson Mfg. Co., Norfolk, Va.
(See their ads. on pages 83 and 360.)

DOORS SIDEWALK. Representing Luxfer Prism Co., Limited, Toronto, Canada.
(See their ad. on page 140.)

EXPANDED METAL LATH AND REINFORCING. Representing Steel & Radiation Limited, Toronto, Canada.

ORNAMENTAL IRON AND BRONZE. Representing Chicago Ornamental Iron Co., Chicago, Ill.

PLASTER HARDWALL, WOOD FIBRE, BOARD, BLOCKS.
Representing The Manitoba Gypsum Co., Winnipeg, Canada.
(See their ad. on pages 108-110.)

PARIPAN LACQUER ENAMEL. Representing Randall Bros., London, England.

SHEET METAL, CORNICES, FIREPROOF AND UNDERWRITERS' LABEL WINDOWS.
Representing The B. C. Ceiling & Roofing Co., Ltd., Vancouver, B.C.

SHINGLE STAINS. Representing Major & Company, Hull, Eng.
(See their ad. on page 133.)

STEEL SASH (FENESTRA). Representing Steel & Radiation Limited, Toronto, Canada.
(See their ad. on pages 330-331.)

STEEL CASEMENTS. Representing Geo. Wragge, Ltd., Manchester, Eng.
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SLATE (BLACKBOARD AND ROOFING). Representing Pennsylvania Slate Co.

WATERPROOFING. Representing Ceresit Waterproofing Co., Chicago, Ill.
(See their ad. on pages 42-43.)

CONTRACTORS' EQUIPMENT. Concrete Cars and Carts, Wheelbarrows, Hoisting Engines, Saw Rigs, Chicago Cube Concrete Mixers, and Austin Trench Excavators.

CLOTH LINED METAL WEATHERSTRIPS. Representing Athey Company, Chicago, Ill.
(See their ad. on page 86.)

WM. N. O'NEIL COMPANY, LIMITED

IMPORTERS AND MANUFACTURERS' AGENTS.

HIGH GRADE BUILDING MATERIAL.

OFFICE AND SHOW ROOM
548 SEYMOUR STREET.
BRANCH OFFICE: 512 FORT STREET, VICTORIA.

WAREHOUSE: 1200 HAMILTON STREET,
VANCOUVER, B.C.

The following material carried in stock, and special attention is paid to filling orders promptly:

Hardwood Mantels Coal, Wood and Gas Grates.
Fireplace Trimmings and Accessories.

TILES.

"Rookwood" Faience, Enamelled, Satin and Lustre Finish.
Vitreous Mosaic for floor and walls, etc.
Embossed and Glazed for walls.
"Rust's" Vitreous and Glass Mosaics, for floors, walls and ceilings a beautiful iridescent tile.
Interlocking Rubber of highest quality.
"Cork Tile" for elevators, dwellings and public buildings durable, sanitary and noiseless.
Marble Slabs, Mosaic and Terrazzo.

GLASS.

Plate, Window, Figured, Rolled, etc.
Polished and Ca Wired.
Art Glass, Domestic and Memorial Windows. Lead or metal glazed.
Special designs submitted upon receipt of request.
American 3-Way Sheet Prisms in sizes up to 100" x 60".
American 3-Way Units, glazed in hard white metal or solid copper.
American 3-Way Pavement Prisms set in galvanized steel frames.

METAL.

Store Front Construction all finishes.
Easyset Construction Co. See their ad. on page 194.

DUPLEX JOIST AND WALL HANGERS.

Post Caps and Base Plated.
See their ad. on page 81.

MISCELLANEOUS.

Parker's Metal Corner Bead, for exterior plaster corners.
"Preston" Metal Corner Bead, for exterior plaster corners.
Coal Chutes, Model and Majestic pattern.
"Humphrey's" Metal Scaffold Brackets great labour-saving device.
"Diamond" Expansion Bolt Shields.
"Rutty's" Metal Wall Plugs.
"Seenro" Concrete Bar Spacers.
"Wainwright" Galvanized Steel Concrete Curb Corner Bars.
"Herringbone" Expanded Metal Lath.
Self-centering for concrete roofs, floors, walls and ceilings.
"Perfection" Steel Studding and Furring Strips.
"Collins" Interlocking Steel Studding and Furring.
"Perfection" Wire Fabric.
Twisted Steel Rods, for reinforcing concrete work.
Metal Wall Ties, Miami and Bull Dog.
"Dayton's" Concrete Inserts.
"Howarth's" Reversible Metal Sash Centres.
"Giesey's" Elevating Window Pivots.
"Hope's" Steel Sash.
Metal, Embossed Ceilings, New Designs.

CONTINUED ON NEXT PAGE

READY-ROOFING. "Neponset" Paroid. High grade material, standard size of rolls.
"Lonabond" Textile Ready Roofing, good for 15 to 20 years. The base is 10 oz. duck. Thoroughly saturated with special preparation and coated with pure gum asphaltum.

BUILDING PAPERS. Ordinary white and tarred.
"Neponset." Double coated building and insulating paper.
Asbestos Paper, 8, 10, 12, 16, 18 and 22 lb. weights carried in stock.
Asbestos Roofing Tiles.
Asbestos Lumber Sheets, 4' x 4' and 4' x 8'.
Asbestos Theatre Curtain.

SOUND-DEADENING MATERIALS. Linofelt, Lith and Flax Fibre Slabs.
Mineral Wool, 1½" thick, in rolls of 125 ft.
Mineral Wool in bulk.
See Union Fibre Co.'s ad. on page 349

HARDWOOD. Interior Capitals and Brackets.
Embossed and Turned Mouldings and Beads.
Veneered Doors.
Quarter-cut and Plain Sawed Oak Flooring.
Maple, Beech and selected Red Birch Flooring.

CEMENT. Victoria Brand, Keen's Cement, as manufactured by Messrs. Cafferata & Co. of England. We stock four grades: superfine, fine, No. 1 and No. 2.
"DeVigans" Caen Stone Cement.
"Hydrolite," for waterproofing cement, mortar and concrete in the aggregate.
"Toxement," a compound successfully used for waterproofing cement and concrete.

PLASTER. Hardwall Gypsum Plaster and Wood Fibre.
"Satin Spar" Plaster of Paris, in barrels.
Plaster Partition Tile, "Parobar" or "Empire."
Plaster Board, "Sacketts" or "Empire."
Lime, Victoria and Texada Brands.
Ornamental Mouldings and Centrepieces.
Mortar Colours.
Composition Capitals, Brackets, etc.

WATERPROOFING. Pinchin, Johnson Co. (Canada), Ltd., Waterproof Paints. For walls, foundation work, steel structural work, metal roofs, iron pipes and ship plates. Electrical insulating paint, cement floor filler and paint. See their ad. on pages 39-41.
Master Builders' Method Concrete Hardener, wearproof, dustproof and waterproof.

CREOSOTE SHINGLE STAIN. "Panton Bros." A Canadian product; Imperial gallon; fixed colours. Dries slow, and soaks into the wood, protecting it from the weather.

ENAMEL, "RIPOLIN." The very highest grade enamel, manufactured in Holland, and extensively used in all parts of the world where high-class work is required. Is perfectly sanitary and used largely in hospitals, ships, yachts, dwellings, lighthouses, buoys, and butcher shops.

GLAZED BRICK. English size, 9" x 2½" x 1⅝", stocked in white only. Highest quality manufactured by Leeds Fireclay Co. of Wortley, Leeds, England.

PRESSED FACING BRICK "Sparta" Impervious and Salt Glazed Buff Colour.
Standard Canadian and American makes in all colours.

CONTINUED ON NEXT PAGE

In addition to the aforementioned materials, which we carry in stock, we are Western Sales Agents for the following:

ORNAMENTAL METAL WORK.

Bronze Work of all description.
Metal Elevator Cars and Enclosures.
Metal Stairs and Bank Railing.
Metal Mouldings, etc.
Metal Lockers for Banks, Gymnasiums, Departmental Stores, etc
Metal Stable Fittings, etc.
As manufactured by the Dennis Wire & Iron Works, Ltd.
See their ad. on pages 172-174.

DOOR HANGERS, BALL BEARING.

As manufactured by the Reliance Ball Bearing Door Hanger Co. Extensively used for Elevator Doors. 1 to 3 Speed Door Hangers; work like clockwork; the very best on the market; write for catalogues. See their ad. on pages 204-205.

METAL COVERED DOORS & TRIM.

Any finish. We represent the well-known "Richardson" Door, as manufactured by the Thorpe Fireproof Door Co. of Minneapolis Minn. See their ad. on pages 340-341.

MAIL CHUTES.

The Cutler Mail Chute Co. Write for catalogues, prices and particulars. Every up-to-date Public Building should have one of these chutes. See their ad. on page 191.

KINNEAR ROLLER STEEL DOORS AND SHUTTERS.

Slates of No. 16 to 22 gauge galvanized steel; equipped with Metal Hood; self releasing device to permit door closing in case of fire; chain gear for operating doors. All in accordance with the Board of Fire Underwriters' requirements. See their ad. on pages 352-353.

SHEET METAL GOODS.

Metal Ceilings, Siding and Shingles, Cornices, etc., as manufactured by the Metal Shingle & Siding Co., Preston, Ont.

"Hoist" The G. & G. Telescopic Hoist, for raising and lowering material from basement to sidewalk. See their ad. on pages 148-149.

"Fire Exit Latch" Von Duprin Self-Releasing Fire Exit Latch absolutely reliable safeguard against panic disasters.

"Furniture" School Desks.
Opera Chairs.
"Carbonal" Blackboards, Black and Green.
Church and School Bells.
Safety Treads Universal Safety Treads.

TERRA COTTA.

We represent the Leeds Fireclay Co. of Wortley, Leeds, Eng., Manufacturers of the highest grade Terra Cotta in the world.

SANITARY WARE AND FITTINGS.

Cliff's Porcelain Fireclay Baths, Lavatories, Urinals, Closets, Sinks, Wash Tubs, etc., of the highest grade, manufactured by the Leeds Fireclay Co., Ltd.

VAULT DOORS AND SAFES.

We represent the National Safe & Lock Co., Manufacturers of a complete line of Safes, Vault Doors and Safety Deposit Boxes, etc. Special catalogue sent you on request.

MARBLE AND SLATE.

We handle Foreign and Local Marble and Slate, and will be pleased to submit samples and estimate on material fixed in position complete.

"Vitrolite," milk-white colour, slabs 3-16 to 1" thick, for walls of hospital operation room, counter and table tops for restaurants, etc.

HARDWOOD INTERIOR FINISH.

We represent Knight Bros., Ltd., of Burk's Falls, Ont., Manufacturers of High Grade Office Fittings, Interior Trim, Veneered Doors, etc., and will be pleased to furnish estimates at any time. We are furnishing the Hardwood Finish for the Bower Building, Vancouver, and Pemberton Building, Victoria, B.C. See their ad. on page 92.

We invite correspondence, and will be pleased to forward special catalogue, bearing on any of our lines, to intending purchasers.

Estimates furnished to Contractors and Builders from plans and specifications.

THE WAITE-FULLERTON CO., LIMITED

BUILDERS' SUPPLIES.
CONTRACTORS' EQUIPMENT.

101 Willoughby
Duncan Block,
Regina.
TELEPHONE 2187.

402 Builders' Exchange,
Winnipeg.
TELEPHONE MAIN 5304

228 Lougheed Block,
Calgary.
TELEPHONE M 1778

CONTRACTORS' EQUIPMENT.

LAKEWOOD CONCRETE SPOUTING PLANTS and MIXERS, STEEL BUCKETS, CLAMSHELL BUCKETS, STEEL CARS.

Sole Agents in Manitoba, Saskatchewan and Alberta of The Canadian Patent Scaffolding Co., Lessors of Patent Safety Scaffolding.

Other Contractors' Equipment:

Mortar Mixers.
Metal Forms.
Hoisting Engines.
Derricks.

A Spouting Plant in Action.

BUILDERS' SUPPLIES.

We also handle Builders' Supplies of all kinds.

We carry in stock ready for immediate delivery GENUINE CAEN STONE CEMENT, which we import direct from France; also Hydratite and Dehydratine Waterproofing Compounds, Mantel Brick, Roofing Slate, Bay State Coating, Fire Brick, etc.

DISPLAY ROOMS.

We maintain brick displays at all points of importance in Manitoba, Saskatchewan, Alberta and British Columbia.

THE DON VALLEY BRICK WORKS

HEAD OFFICE, 36 TORONTO STREET,
TORONTO, ONT.

MONTREAL AGENT:
DAVID McGILL,
83 BLEURY STREET.

WORKS:
DON VALLEY, TORONTO.

PRODUCTS. We are the largest manufacturers in the Dominion of High Grade BURNT CLAY PRODUCTS and have exceptional facilities for turning out PRESSED BRICKS, ENAMELLED BRICKS, ordinary KILN RUN STOCK BRICKS and TERRA-COTTA HOLLOW TILES for fireproofing.

PRESSED BRICKS. Our Standard Red and Buff Pressed Bricks are of the highest grade, and we are prepared to supply Bricks for special work that are selected from the finest stock.

SPECIAL BRICKS. We carry in stock large quantities of Bullnoses and Base Bricks and are prepared to make Specially Moulded Bricks or Arch Bricks from Architects' drawings.

STOCK BRICKS. We also manufacture and carry large quantities of Red and Gray Stock Bricks of excellent colour, hard-burned, with faces and arrises true.

CLINKER BRICKS. We make hard-burned Clinker Bricks, vitrified throughout, suitable for paving and heavy foundations.

SIZES. Standard size Pressed Bricks, approximately: Red, $8\frac{1}{4} \times 2\frac{1}{4} \times 4\frac{1}{4}$; Buff, $8\frac{1}{2} \times 2\frac{1}{2} \times 4\frac{1}{4}$.

Standard size Stock Bricks, approximately: $8\frac{1}{4} \times 2\frac{1}{2} \times 4\frac{1}{4}$.

FACILITIES. Our facilities are exceptional for turning out first-class material. The extensive clay-beds in the Don Valley are so widely known as being one of the few clay deposits that are suitable in quality, free from lime, and having the necessary ingredients to form a good Brick.

CAPACITY. Our total annual capacity is 75,000,000; we always carry a large stock and can fill orders promptly. We have excellent shipping facilities and will be pleased to quote prices, including freight.

We will gladly supply samples of our bricks to prospective users, express prepaid.

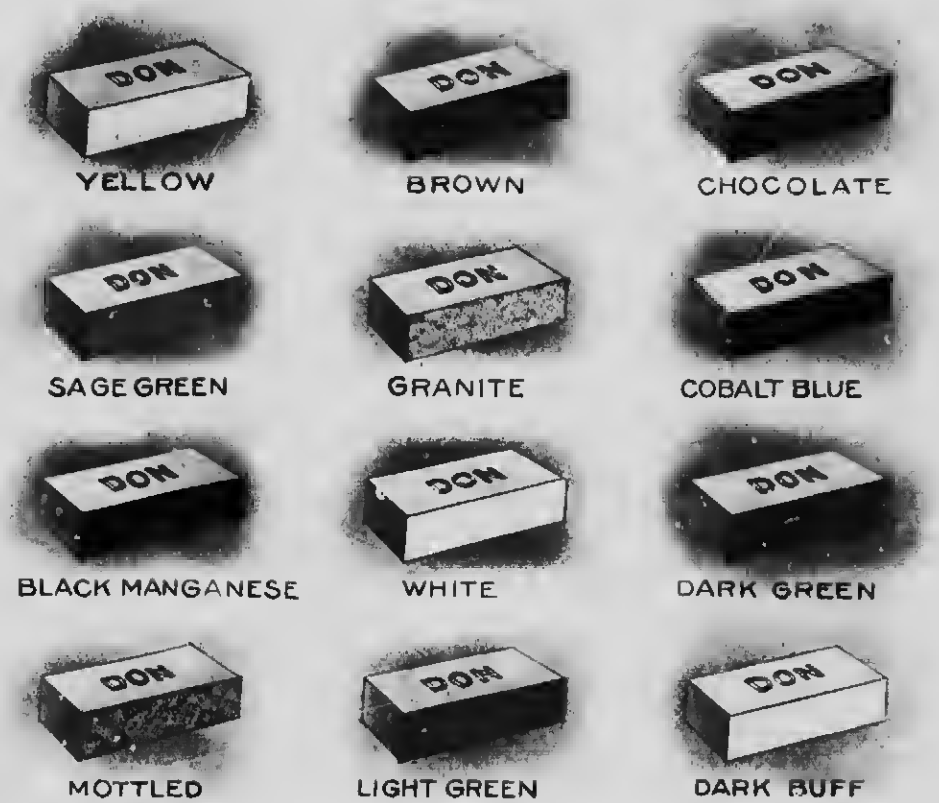
CONTINUED ON NEXT PAGE

ENAMELLED BRICKS.

We manufacture High Grade ENAMELLED BRICKS in the following colours. Yellow, Brown, Chocolate, Sage Green, Light Green, Dark Green, Cobalt Blue, Robin's Egg Blue, Dark Blue, Light Buff, Dark Buff, Granite, Mottled, Black Manganese, White and Red.

UNIFORMITY OF SHADES.

We guarantee uniformity of shades.



ADAPTABILITY.

Enamelled Bricks are used where light and cleanliness are essential; for instance, Light Shafts and Courts, Elevator Shafts, Bakeries, Restaurants, Markets, Subways, Tunnels, Railway Depots, Fire Engine Houses, Bank Vault Interiors, Sanitariums, Mausoleums, Stables, Swimming Pools, Turkish Baths, Kitchens, Laundries, Smoking Rooms, Power Houses, etc.

SPECIAL SHAPES AND COLOURS.

We are at all times pleased to make special and ornamental Enamelled Bricks in any colours or shapes desired by architects to fill peculiar conditions, and invite correspondence in regard to same.

See also our ad. under tab—"Terra Cotta Fireproofing."

THE HAMILTON PRESSED BRICK CO., LIMITED

HEAD OFFICE, 608 SPECTATOR BUILDING,
HAMILTON, CANADA.

ROBERT W. NEW, PRESIDENT. GORDON B. NEW, VICE-PRESIDENT. HERBERT H. NEW, SEC'Y-TREASURER.

PHONES. HOUSE, 345. FACTORY, 1092. OFFICE, 2931

TORONTO AGENT WALTER E. HUNTER & CO., 34 VICTORIA STREET.
PHONES: OFFICE, MAIN 5099. HOUSE, PARK 3170.

PRODUCTS. HAMILTON PRESSED BRICK.

FACILITIES. Owing to the great demand for our Pressed Brick, we have this year doubled our plant.

This new equipment enables us to *ship more promptly than ever.*

LOADING. We load *direct from kilns to cars*, and pack carefully with straw.

NOTE. Be sure that "**HAMILTON**" is stamped on every brick.

WRITE FOR PRICES.

SAMPLES ON APPLICATION.

GEO. CARPENTER

BUILDERS' SPECIALTIES

OFFICE AND SHOW-ROOM: 314 UNIVERSITY STREET,

MONTREAL.

"RUS" ART BRICKS.

Manufactured by the Ravenhead Brick Co., Ltd., St. Helen's, Eng., from a mixture of very hard rocks and shales, producing an impervious brick with rusticated surface, having A PECULIAR RANGE OF COLOUR TONES, which blend perfectly and give the appearance of WELL-PRESERVED AGE directly they are set up. Made in all sizes and any shape that may be required; also CARVED, in which case each tablet is CARVED FROM DESIGN, and not produced from a mould or pattern.

"RUS" ART WALLING.

An adaptation of Brickwork, composed of blocks of different sizes, with or without a percentage of regular sized Bricks. Proportions usually specified, 50% to 75% blocks. This walling possesses all the ARTISTIC MERITS OF "RUS" ART BRICKS.

"SANDRUFF" PAVING.

HAND-MADE TILES, manufactured by the Coalbrookdale Co., Ltd., Shropshire, Eng., from highly suitable materials mined from great depths, in sizes from 2" x 3" x ½" to 12" x 12" x 2", with a slightly sanded surface, in BEAUTIFUL SHADES OF REDS AND BROWNS, and having NO GLARE, HARD METALLIC APPEARANCE OR GLAZE.

ROOFING TILES.

PLAIN AND ORNAMENTAL, with all Fittings (Hips, Valleys, Ridges, Finals, etc.), both HAND AND MACHINE MADE, in Red, Brown and Dark Brindled, from same materials as "Sandruff" Paving. Though the hand-made tiles have been manufactured for upwards of 70 YEARS, NO SINGLE CASE OF DAMAGE BY FROST WAS EVER KNOWN.

ARCHITECTURAL TERRA COTTA.

Manufactured by the Bispham Hall Terra Cotta Co., Orrell, near Wigan, Eng. PLAIN AND VITREOUS, in all shades and finishes of Buff and Grey. MATT SURFACE AND FULL GLAZED, in White, Cream and Granite Colours or to special requirements. FINEST QUALITY ONLY. SPECIALTY: LARGE BLOCKS, ONE-PIECE SILLS, HEADS, etc.

TILES.

Manufactured by Messrs. Craven, Dunnill & Co., Ltd., Jackfield, Shropshire, Eng. All descriptions of ENCAUSTIC TILE PAVEMENTS AND MOSAICS. SPECIAL TILES for Boiler and Engine Rooms, Baths, Ships, etc., in Red, Buff and Black, and FOR PAVEMENT LIGHTS, having a permanent non-slip surface and giving better service than any other tile or material on the market. GLAZED AND ENAMELLED TILES of every description. ROUGHED, MATT SURFACE AND ANTIQUE FINISHES. WALL MOSAICS, LUSTRES, etc., etc.

A highly skilled staff of designers at your service.

OTHER PRODUCTS.

FIRE BRICKS AND BLOCKS for all purposes; SILICA BRICKS for high temperatures; BUFF AND BLUE PAVING BRICKS, etc., etc.

NOTE.

New ideas, special designs, etc., welcomed. WE ARE SPECIALISTS IN CLAY GOODS OF EVERY DESCRIPTION.

CLARENCE E. POSTON

ATTICA, IND., U.S.A.

CANADIAN AGENTS:
ALSIP BRICK, TILE AND LUMBER CO.,
502 BUILDERS' EXCHANGE,
WINNIPEG, MAN.

POSTON-ORIENTAL BRICK.

This is the Brick that taught the world the beauty of rough-surfaced burned clay, and is manufactured by Clarence E. Poston, the originator of Oriental face brick.

DESCRIPTION, COLOURS, ETC.

It is a vitrified shale Brick, cut rough to give it "Texture," and burned in the opulent colours of a Persian rug.

The colours range from delicate pinks to black, with intermediate shades of golden browns, purples, greenish golds, blue-blacks, etc., in endless variety. These colours, as they come from the kilns, when in the wall of a building, form masses of colour, beautifully composed, which give pleasure to the senses of sight.

The Poston-Oriental excels all the Oriental brick in the gradation and blending of colours. Sharply defined colours do not show in a wall of this material; the figurations show perfect harmony and rhythm throughout the whole wall. Each brick is a colour study, owing to the variegation in colour of a single unit, but, when in masses, the colour effect equals the product of the Oriental loom.

Architects find this material a potent means of artistic expression.

SIZES.

I produce these Oriental colours in bricks of the following sizes:

Portal size - - - - - - - - - -	$1\frac{1}{2} \times 3\frac{1}{2} \times 8\frac{1}{2}$
Poston-Oriental size - - - - - - -	$2 \times 3\frac{1}{2} \times 8\frac{1}{2}$
Postonian size - - - - - - - - -	$2\frac{1}{4} \times 4 \times 8\frac{1}{4}$

NOTE.

The Alsip Brick, Tile and Lumber Co., Winnipeg, represent my product in their territory, and have handled it successfully for a number of years. In their display rooms may be seen panels of the different kinds.

CO-OPERATION.

I am desirous of extending my trade to Eastern Canada, and solicit correspondence from dealers.

CATALOGUE.

Write for my booklet, "He Turned a Brick Inside Out." It's said to be worth reading.

THE SUN BRICK CO. LIMITED

401 Traders Bank Building,
Works Don Valley. TORONTO, ONT.

PRODUCTS. We are manufacturers of and specialize in the very highest grade of HARD BURNT SHALE BRICK. These Bricks can be had in all shapes, sizes and colours, according to the architect's or builder's requirements.

OUTPUT. Our present capacity is 70,000 bricks a day.

P. TEXTURE.

TEXTURE.

P. TEXTURE.

TEXTURE.

M. TEXTURE.

ROUND CORNER SMOOTH.

INFORMATION. We shall be pleased at all times to furnish architects, builders and others interested with information and samples upon request.

WE INVITE YOUR INSPECTION OF OUR PLANT.

NOTE. See our tile display on page 45.

THE COLUMBUS BRICK & TERRA COTTA CO.

ESTABLISHED 1885.

MAIN OFFICE: COLUMBUS, OHIO. WORKS: UNION FURNACE, OHIO.

CANADIAN AGENCIES:

HAMILTON:	Gordon K. Fraser.	MONTREAL:	David McGill
TORONTO:	Black Building Supply Co., Ltd.	WINNIPEG:	The Waite Fullerton Co., Ltd
CALGARY:	The Waite Fullerton Co., Ltd.	SASKATOON:	The Waite Fullerton Co.,
HALIFAX:	Brookfield Bros., Ltd.	VANCOUVER, B.C.	The Waite Fullerton Co., Ltd.

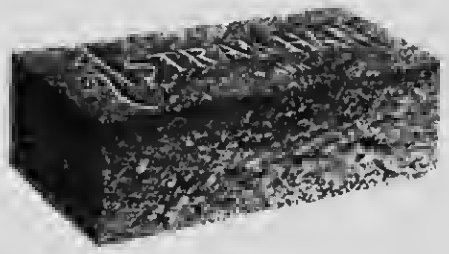
OFFICE AND FACTORY BUILDINGS OF THE NATIONAL CASH REGISTER COMPANY, DAYTON, OHIO.
2 Million Buff and Gray Brick, manufactured by The Columbus Brick and Terra Cotta Company, Columbus, Ohio, were used in the facades of these buildings.

PRODUCTS. HIGH-GRADE DRY PRESSED AND WIRE CUT FACING BRICKS, BRICK MANTELS and ARCHES made to order.

COLOURS. Buff, Gray, Buff Speckled and Gray Speckled in Dry Pressed: Ivory and Gray in plain Wire Cut; Buff, Onyx Gray, Granite, Flemish, Terra Cotta Astrakhans.

KINDS Standard and Norman sizes in Dry Pressed; Standards only in Wire Cut

SIZE. Standards, $2\frac{1}{16}$ x 4 x $8\frac{1}{16}$, Dry Pressed; Standards, $2^{1}{}_{8}$ x 4 x $8^{1}{}_{8}$, Wire Cut; Normans, $2\frac{1}{16}$ x 3 x $11\frac{7}{8}$



ESTABLISHED WEIGHTS. Standard Dry Pressed, 5,630 pounds per thousand; Wire Cut, 5,730 pounds per thousand; Normans, 6,030 pounds per thousand.

IMPERVIOUS BRICK. Attention is called to our Ivory Impervious Brick, which are especially adapted for light courts, and all inside and outside facings.

EFFLORESCENCE. Our brick are free from efflorescence.

SPECIALTY. We make a specialty and carry extra large stocks of ASTRAKHAN rough texture brick. Notwithstanding the fact that the faces of these brick are rough, the form is perfect, and they run very even in size, and we claim they are the best brick of this character on the market to day. We make three assortments of the Buff Astrakhans: Buff, Onyx and Buff-Onyx; of the Gray Astrakhan: Gray, Granite and Flemish. The Flemish Astrakhans, used mostly for Headers in Flemish Bond, are flashed almost to a brown.

PROMPT SHIPMENTS. We carry at all times a large and well-assorted stock, insuring prompt shipments.

CATALOGUE SAMPLES. Catalogues and samples cheerfully forwarded on application to main office or nearest agency.

AMERICAN ENAMELED BRICK AND TILE CO.

Incorporated [illegible]

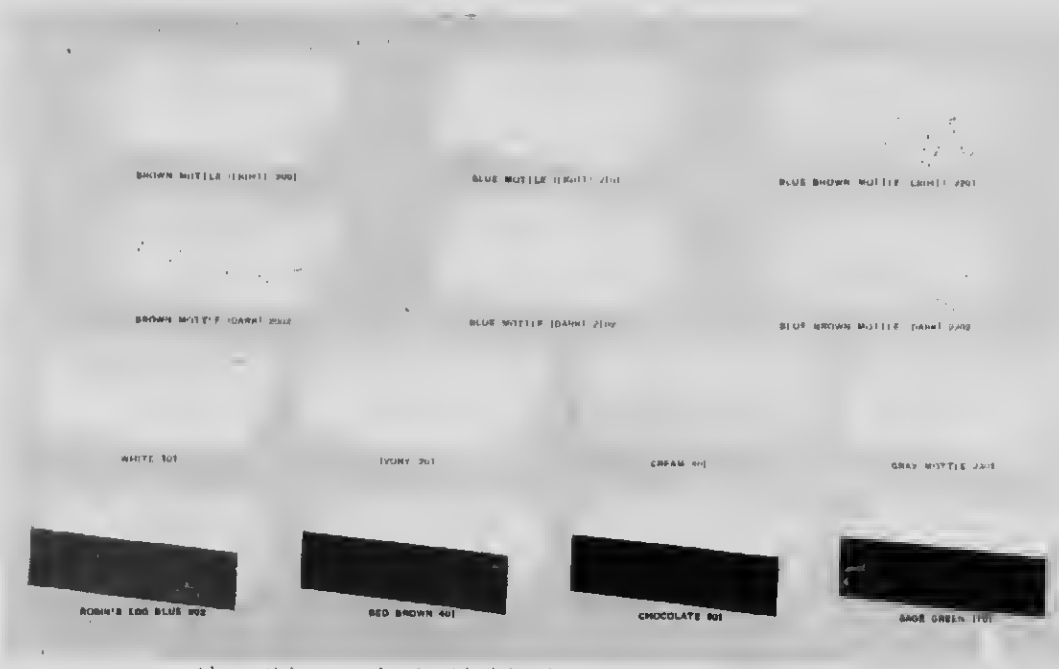
Enameled Brick in Standard and Ornamental Shapes.

CENTURIAN BUILDING, 1182 BROADWAY,
NEW YORK, N.Y.

Telephones 1160-1161 Madison Square

Cable Address — Amerbrick

REPRESENTED IN ALL LARGE CITIES OF UNITED STATES, AND IN
MONTREAL, OTTAWA, TORONTO, HAMILTON, LONDON, WINDSOR, WINNIPEG, CALGARY AND VANCOUVER, CANADA



Above Colors can be furnished in either Bright, Medium or Matt Finish

PRODUCTS	ENAMELED BRICK in Standard Sizes and Ornamental Shapes — see plates.
TERRITORY	The business operations of this firm cover the entire United States, Canada and South America.
DETAILS REQUIRED FOR ARCH BRICK	When ordering arches, please furnish details as far as possible in advance of the time the arches will be required. We should be allowed from three to six weeks' time to make up Arch Brick. Arch Brick should be made to order to secure satisfactory work. We keep no standard arches in stock. We cannot always guarantee uniformity of shade in arches as in regular deliveries of first quality plain stock brick. *The particulars* [illegible]
WORKING DRAWINGS FOR ARCHES	We make full sized working drawings (shrinkage scale) and mark drawings so that each different brick has its own designating letter or number in arch, and make typewritten schedules. We keep one copy of drawing and schedule with the brick to serve as [illegible] file. The mason should lay each brick on its place on drawing before attempting to set the arch. We pack arches separately in barrels and mark barrels distinctly to avoid confusion at job.
SPECIAL FEATURES AND ADVANTAGES OF OUR ENAMELED BRICK	In making our product we follow the English and Scotch systems, working on the stiff mud process. This is without question the only process which insures durability and the closest relation being obtained between body and glaze. Our brick are burnt in but one kiln, thus making the chemical [illegible] the body and the glaze simultaneously. Where manufacturers use the dry pressed process the brick have to be burnt first as final brick before the enamel can be applied, and fired again for the burning of the glaze. Where the enamel is applied on an already burnt brick [illegible] to follow. We use hard and durable glazes, not soft lead glazes, in getting the various colours of Enameled Brick. We have not a single case during our twenty years of business where any peeling has been seen or reported. This is better than any guarantee which we might be asked to give, as it covers a twenty year output of many millions of brick located all over the United States, Canada and South America, and subject to all varieties of climatic conditions.
CLEANING	Enameled Brick are best cleaned with some alkaline solution such as [illegible] Soda or Sodium Carbonate. This cleans the enamel and does not affect the cement or lime mortar. Acids — Sulphuric, Nitric or Hydrochloric Acid, even in concentrated form, will not affect our glazes, but [illegible] even when diluted, they will attack the cement or lime mortar. The only commercial Acids that will attack our glazes are Hydrofluoric and Hydrofluosilicic.
SPECIAL DESIGNS	New designs of special moulded shapes are always [illegible] although an explanation of the [illegible]
STOCK DESIGNS	Much delay is saved by use of stock designs of moulded brick. These designs are chosen to reduce manufacturing troubles and delays to a minimum [illegible] to be made up and to enable prompt filling of orders. No other manufacturer offers this [illegible]. See plates. Two stock sheets are devoted exclusively to these specials.
COLOURS AND THEIR DESIGNATIONS	We show herewith several samples of colour of our brick, together with their title and numerals. Colour is indicated by hundreds-numerals, and shade by units-numerals. For example, we indicate White by Nos. 101, 102, 103 and 104; No. 101 being the lightest shade and 104 the darkest. These are but a few of the many colours we make in both the matt and bright finish glazes.
UNIFORMITY OF SHADES	We guarantee uniformity of shade in all first quality deliveries to the limit of practicability. Colours giving most uniform results are, in order of degree of uniformity, white, red brown and sage green. Other colours follow in irregular positions. We will try on orders of moderate size, or on larger orders, if ample time be given, to match in shade the moulded and stretcher stock in any order, but cannot always guarantee to match with shade shipments of specials. *N.B. Uniform Shading* [illegible] *Sage Green* [illegible]
ILLUSTRATIONS.	In the following pages are shown designs that we recommend as being most satisfactory in manufacturing results. We try to keep a stock of these on hand, in standard colours and in English and American sizes.

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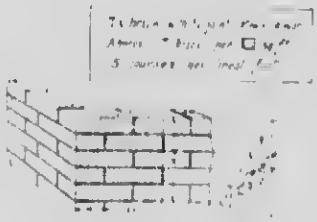
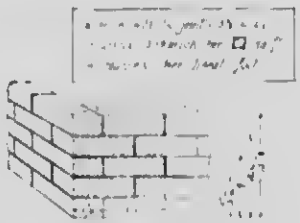
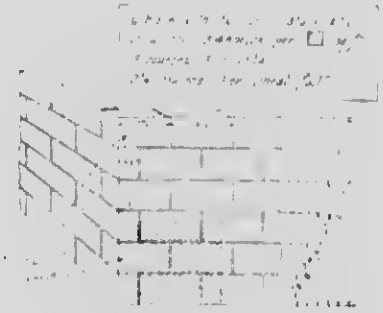


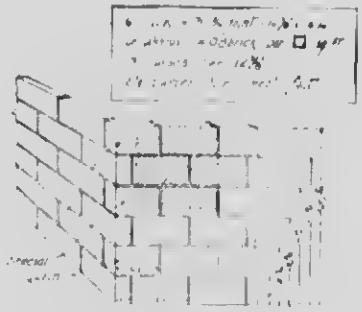
Standard American Size.



Standard English Size



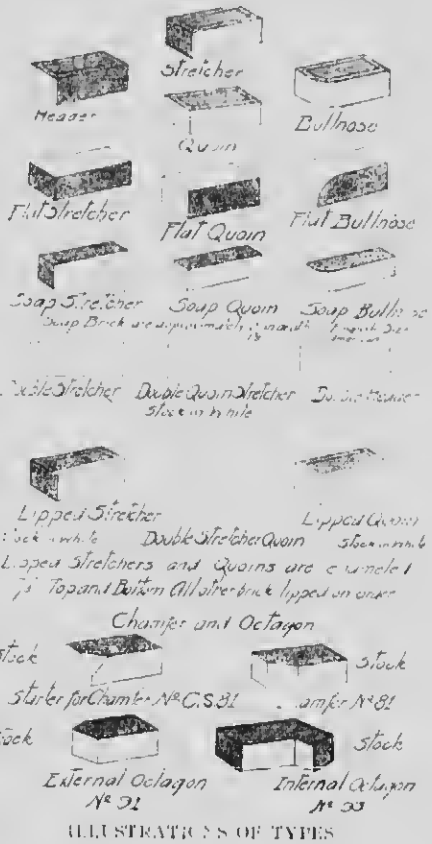
Standard American Size Flatters



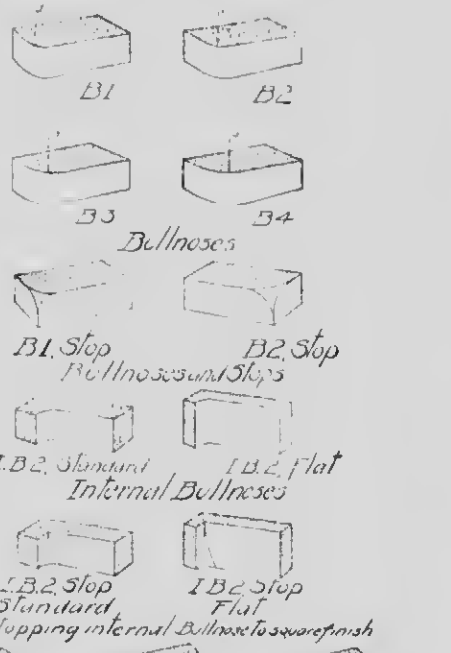
Standard English Size Flatters

COMPARISON OF SIZES, SHOWING NUMBER OF BRICK PER SQUARE FOOT.

All dimensions are approximate



ILLUSTRATIONS OF TYPES



BULLNOSES AND STARTERS.

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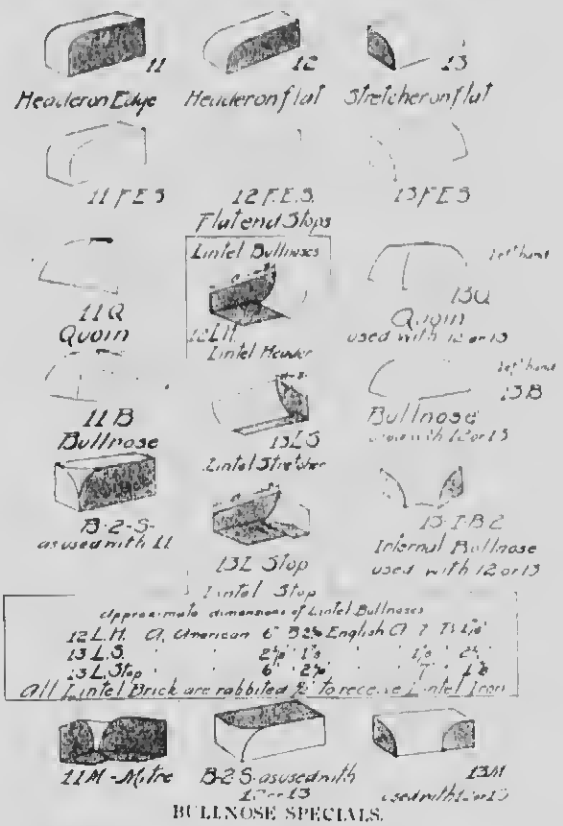
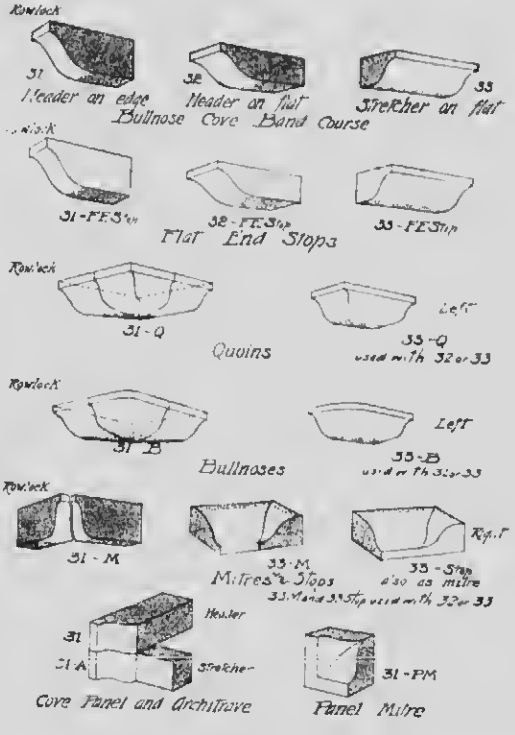
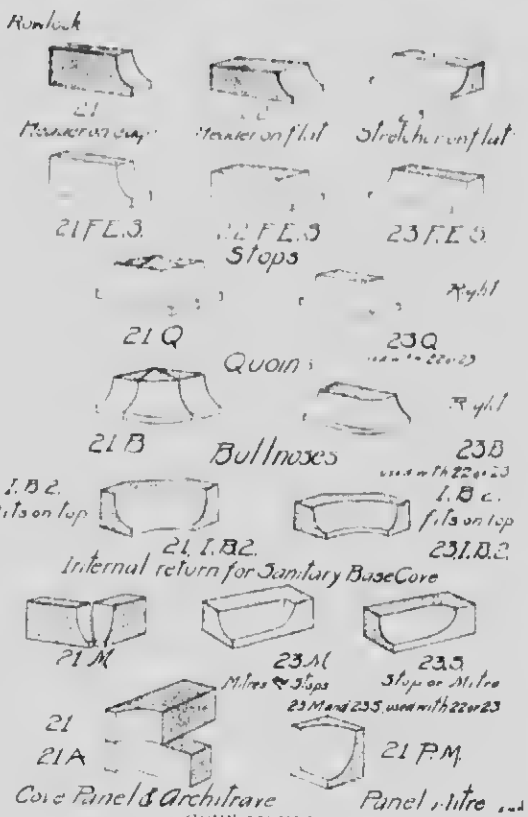


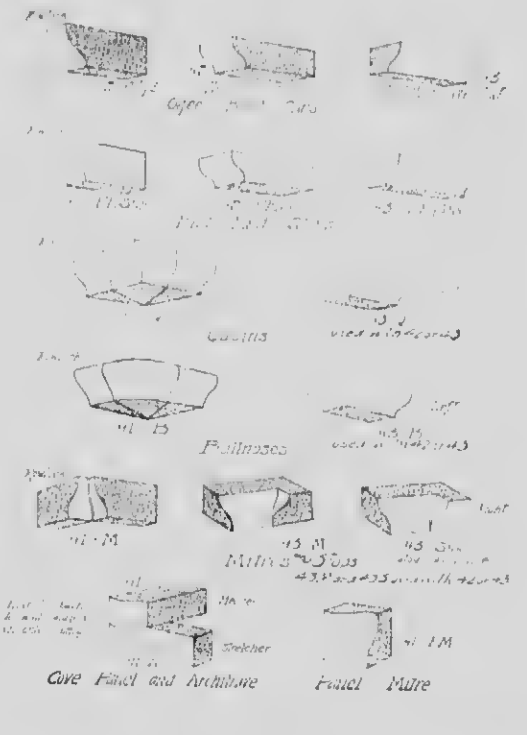
BULLNOSE SPECIALS.



BULLNOSE COVE MOULD.



COVE MOULD.



OGEE MOULD.

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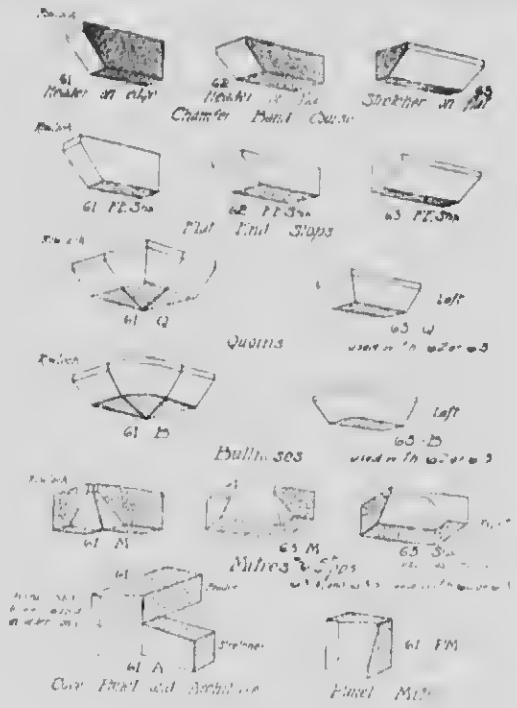
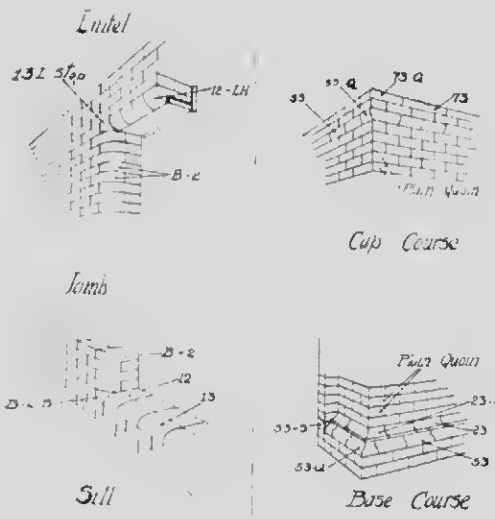
OGEE MOULD.



CHAMFER MOULD.

BEAD MOULD.



STUDY OF A WINDOW OPENING.

STUDY OF A BASE AND CAP COURSE.

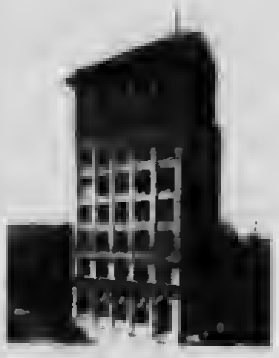
NATIONAL BUILDERS' SUPPLY AND ENAMEL CONCRETE BRICK CO. LIMITED

HEAD OFFICE, 30 ST. FRANCOIS XAVIER STREET,
MONTREAL, QUE.

PRODUCTS. We manufacture ENAMEL CONCRETE BRICK, and produce them in Pure White, Light Gray, Dark Gray, Cream, Light Buff, Dark Buff, Light Brown, Dark Brown, Light Red, Dark Red, Light Green, Dark Green, Light Blue, Dark Blue, and Black.

ENAMEL CONCRETE BRICK may be made in any colour or shade and "Faced" to give an Enamel, Pressed or Moss finish.

ENAMEL CONCRETE BRICK have been tested and examined by the leading architects and engineers throughout the United States and Canada. They stand a greater test for strength and fireproofing qualities than clay brick, and grow stronger and more impervious to weather conditions with age.



NORTH WEST TRUST BUILDING, VANCOUVER, B.C.
J. P. Matthewson & Son, Architects. Dominion Construction and Supply Co., Contractors

WALKER BANK BUILDING, SALT LAKE CITY
Earnest A. Young, Architects, St. Louis. The Straight Co. Contractors, St. Louis

CROCKETT LODGE BUILDING, VANCOUVER, B.C.
J. P. Matthewson & Son, Architects. Dominion Construction and Supply Co., Contractors

ENAMEL FACING. The Glossy finish of ENAMEL CONCRETE BRICK is produced by a process which we control exclusively under license through the original patents.

The facing, which is amalgamated with the backing under enormous pressure, is impervious to moisture, and will "rain wash," thus requiring no cleansing, even in the lighter tints, after the bricks are in the wall

OUR PLANT. We have installed at Masconche, Que., a complete set of machinery and other appliances for making ENAMEL CONCRETE BRICK, which has a capacity of over 30,000 in ten hours. These machines work automatically, so that our brick are handled but twice until stored ready for market

CURING The curing of ENAMEL CONCRETE BRICK is accelerated by steam treatment, which produces perfect crystallization and in the shortest possible time. No burning is necessary; therefore, no broken or distorted bricks are produced, and a great saving of time is effected

CO-OPERATION. We invite architects and engineers to visit our Office and inspect our products, as we believe we have a Brick which will fill a need long-felt by those who wish to produce artistic effects as well as durable construction.

HYDRAULIC-PRESS BRICK COMPANY

Hy-tex Brick

LARGEST MANUFACTURERS OF FACE BRICK IN THE WORLD,

ST. LOUIS, MISSOURI.

PRINCIPAL CANADIAN AGENCIES:

W. A. FREEMAN CO., LTD., Cor. Hunter & Ferguson Aves.	Hamilton, Ont.
MESSRS. HAYMAN & MILLS	London, Ont.
ALEX. BREMNER, LTD., 100 Bleury Street	Montreal, Que.
STANDARD SUPPLIES, LTD., 96 Bank Street	Ottawa, Ont.
PRENEAT & CIE., 140 rue St. Pierre	Quebec, Que.
BLACK BUILDING SUPPLY CO., LTD., 201 Mail Building	Toronto, Ont.
N. J. DINNEN & CO., LTD.	Winnipeg, Calgary, Vancouver and Victoria.
NORTHERN SUPPLY COMPANY	Edmonton, Alta.
TWIN CITY SAND COMPANY	Fort William, Ont.
J. B. TURNEY & CO.	Lethbridge, Alta.
J. B. TURNEY & CO.	Medicine Hat, Alta.
GENERAL BUILDERS SUPPLY CO.	Moose Jaw, Sask.
McKENZIE & THAYER	North Battleford, Sask.
TWIN CITY SAND CO.	Port Arthur, Ont.
BOWMAN SUPPLY COMPANY	Prince Albert, Sask.
ROBSON SUPPLY COMPANY	Regina, Sask.
McKENZIE & THAYER	Saskatoon, Sask.

AMERICAN BRANCH OFFICES:

BALTIMORE, MD.: Title Building.	KANSAS CITY, MO.: Rialto Building.
CHICAGO, ILL.: Chamber of Commerce Building.	MINNEAPOLIS, MINN.: 211 S. Fourth St.
CLEVELAND, OHIO: Schofield Building.	NEW YORK, N.Y.: 481 Fourth Ave.
DAVENPORT, IOWA: Putnam Building.	OMAHA, NEB.: Woodmen of the World Bldg.
DUBOIS, PA.: Hy-tex Building.	PHILADELPHIA, PA.: Real Estate Trust Bldg.
INDIANAPOLIS, IND.: Board of Trade Building.	TOLEDO, OHIO: Ohio Building.
WASHINGTON, D.C.: Colorado Building.	

PRODUCTS. HY-TEX BRICK: FACE BRICK, FRONT BRICK, MATT BRICK, PRESSED BRICK, IMPERVIOUS BRICK, ORNAMENTAL BRICK, FLASHED BRICK, SPOTTED BRICK, SPECKLED BRICK, MOTTLED BRICK, IRONSPOT BRICK, MOULDED BRICK, including BLACKSTONES, BOKARAIS, HYDRAULIC, MENOMINEE SAND MOULDS, VELOURS, WASHINGTON GRAYS, WINSLOW IRONSPOTS, etc.

ENAMELLED BRICK: HY-NAMEL BRICK, HY-NAMEL COURTS, and PORCELAIN BRICK.

SALT GLAZED BRICK.

TRADE-MARK. "Hy-tex" is the only name which stands for universal quality in brick, and for that only. All other brick trade-marks mean some one colour or some one texture. The Hy-tex trade-mark means simply best brick. And there's a Hy-tex Brick in in every colour and every texture.

COLOURS AND TEXTURES. As stated above, Hy-tex Brick is made in every colour and every texture known to brick-burning. Colour cards and samples sent on request.

SIZES. Standard, Roman, Norman, English and Special Sizes.

CO-OPERATIVE SERVICE. It is our aim to deliver a service in keeping with the quality of our products. Our agencies and managers are always glad to co-operate with architects on special brick problems. Exhibit rooms are maintained at all our offices to show effects that can be produced with Hy-tex Brick laid in various bonds and mortars.

CONTINUED ON NEXT PAGE

HYDRAULIC-PRESS BRICK COMPANY

Hy-namel Brick

LARGEST MANUFACTURERS OF FACE BRICK IN THE WORLD,
ST. LOUIS, MISSOURI.

For List of Agencies see Preceding Page.

PRODUCTS.	Hy-namel Brick, Hy-namel Courts, Porcelain Brick.
QUALITY.	Hy-namel Brick has set a standard of quality and durability unapproached by any enamelled brick of foreign or domestic manufacture.
COLOURS.	White, Cream, Blue, Green, Brown, Speckled and Transparent Glazes.
SIZES.	Standard, Roman, Norman, English and Special Sizes.
MOULDED SHAPES.	We make such a wide variety of moulded brick that we feel it necessary to refer you to our moulded brick catalogue, which will be sent on request.
HY-NAMEL COURTS.	Hy-namel Courts are in every way equal in wearing quality to Hy-namel Brick. They are not, however, so carefully graded as to small imperfections, but they are in every way suitable for courts, light shafts, etc.
GUARANTEE.	We guarantee that Hy-namel Brick will not craze, scale off or discolour, under any climatic conditions.
REFERENCES.	It is not any one particular building faced with Hy-namel Brick that we submit as evidence of Hy-namel quality, but all of the hundreds of buildings in which it has been used. These buildings, some of which have been exposed to all sorts of weather for years, retain their original appearance.

Chicago, Burlington and Quincy Railroad Station, Omaha, Nebraska
Showing Hy-namel Brick which has been in use more than sixteen years, and has no trace of cracking, scaling or discolouring.

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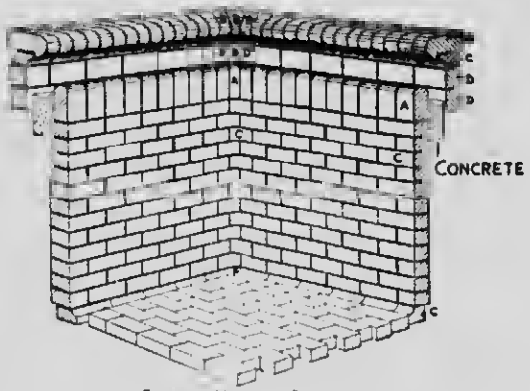
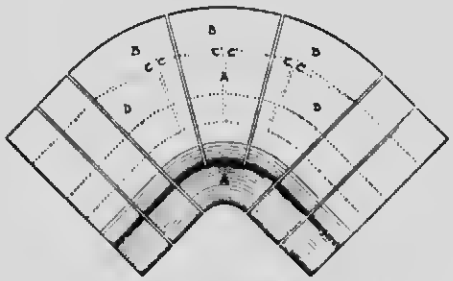
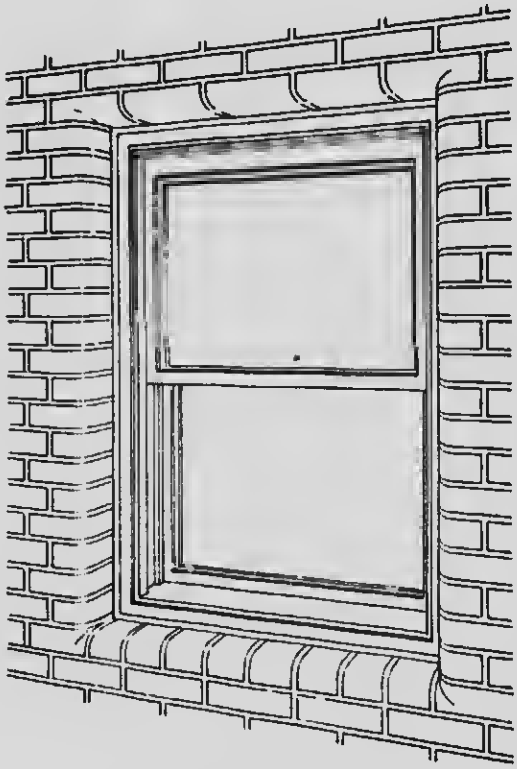


CORNER VIEW OF POOL



PLAN VIEW AT CORNER OF HAND RAIL

CORNER CONSTRUCTION IN SWIMMING-POOL OF HY-NAMEL BRICK.



HY-NAMEL MOULDED BRICK IN INTERIOR OF WINDOW.

DETAILS OF HY-NAMEL BRICK CONSTRUCTION.

HY-TEX SALT GLAZED BRICK.

SALT GLAZED BRICK. The development of Hy-tex Salt Glazed Brick now offers the architect an impervious and sanitary facing material for exterior and interior work where a sanitary brick is desired, but where the appropriation does not warrant the use of an enameled brick.

DESCRIPTION. Hy-tex Salt Glaze is an impenetrable and indestructible Salt Glaze on an impervious, vitrified body, impervious to moisture, germ and dust-proof, non-staining and everlasting. The Glaze will not craze, crack, scale or peel under the most severe climatic conditions.

COLOURS. Hy-tex Salt Glazed Brick are assorted into eight shades, ranging from Light Straw through Golden Browns to Mahogany shades.

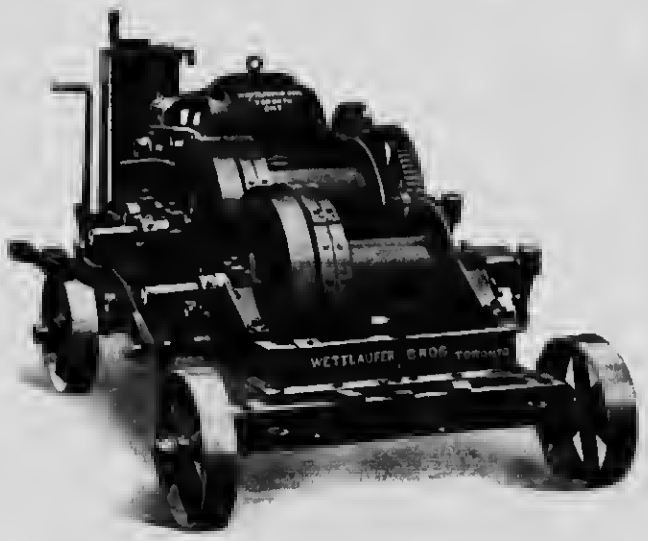
WETTLAUFER BROS.

178 SPADINA AVENUE,
TORONTO, ONT.

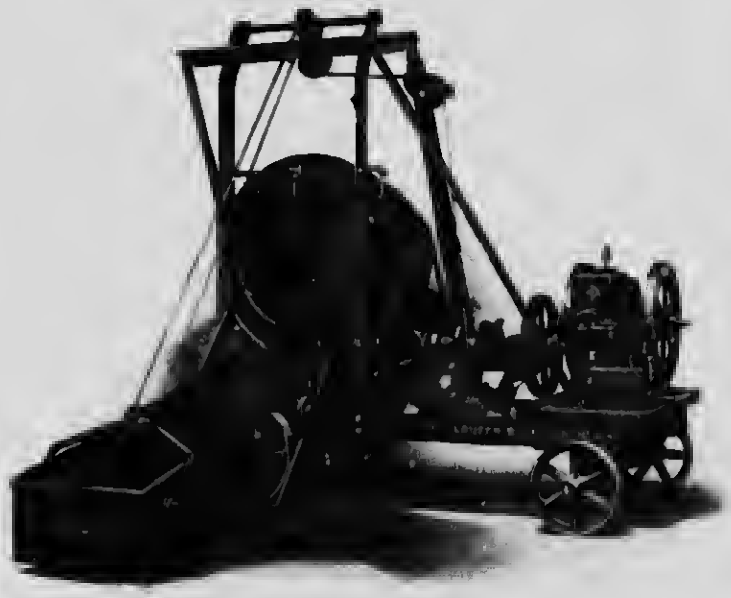
BRANCHES:
WETTLAUFER BROS., 316 Lagauchetiere St., Montreal, Que.; Halifax, N.S.
A. R. WILLIAMS MACHINERY CO., St. John, N.B.
J. L. LACHANCE, 363 St. Paul St., Quebec, Que.
CANADIAN BRITISH ENGINEERING CO., 324 Smith St., Winnipeg, Man.
A. E. HODGERT, Regina, Sask.

BRANCHES:
R. F. MANCILL, 117 10th Ave. E., Calgary, Alta.
A. E. HANSAN, 117 10th Ave. E., Edmonton, Alta.
THE HALLMAN MACHINERY CO., 374 Alexander St., Vancouver, B.C.
MAYSMITH & LOWE, 1057 Wears St., Victoria, B.C.

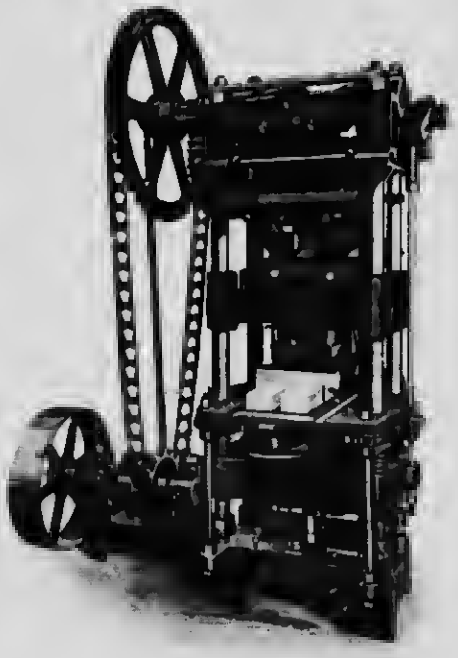
PRODUCTS. We are manufacturers of CONCRETE MIXERS, PAVING MIXERS, STANDARD MIXERS, CONTINUOUS MIXERS, HAND MIXERS, TILTING DRUM MIXERS, STATIONARY DRUM MIXERS, ROAD TRACTION MIXERS, GASOLINE, ELECTRIC and STEAM HOISTS, POWER PRESS BRICK MACHINES, HAND BRICK MACHINES, STATIONARY and MOUNTED CRUSHERS, ELEVATORS, BELT CONVEYORS, REVOLVING SCREENS, TILE MACHINES, BLOCK MACHINES, GASOLINE ENGINES, MOTORS, STEAM ENGINES, BOILERS, SIDEWALK TOOLS, TILE CARS, BRICK CARS, DIAPHRAGM, CENTRIFUGAL and STEAM PUMPS, STEAM SHOVELS with Travelling Motion and Clam Shell Bucket, AUTOMATIC TRENCH MACHINES, STEAM DIGGERS (capacity 150 yards to 5,000 yards per day), STEEL DUMP CARS, CONTRACTORS' and BUILDERS' SUPPLIES, ETC.



HEAVY CONSTRUCTION DOUBLE DRUM ELECTRIC HOIST, WITH REVERSIBLE VARIABLE SPEED CONTROLLER AND MOTOR FOR HYDRO NIAGARA AND DIRECT CURRENT



NO. 4 TILTING DRUM HEART SHAPED MIXER.
Capacity, 12 cubic feet.



POWER BRICK PRESS
Capacity, 12,000 to 15,000 for Cement, Clay Lime and Sand.

INFORMATION. Prices and full information upon request.

TREGILLUS CLAY PRODUCTS LIMITED

HEAD OFFICE: 438 LOUGHEED BUILDING,
CALGARY, ALTA.

OFFICES:
304 ALEXANDRA BLDG.,
EDMONTON, ALTA.

OFFICES:
3 BANNER BUILDING,
REGINA, SASK.

PRODUCTS. Manufacturers of FACE BRICK, PAVING BRICK, FIREPLACE TILES, WALL and FLOOR TILES.

TREGIL ROUGHS. TREGIL ROUGHS are the highest quality face brick made in Western Canada. These are stiff mud, hard-burned bricks, with a rough texture face. The stiff mud process of face brick making is the only one that produces hard, impervious, beautifully-coloured, lasting front bricks.

COLOURS. TREGIL ROUGHS represent the most modern, artistic type of brick for facing purposes. There is a range of colours embracing

Light Reds.
Dark Red.
Chocolate.
Purple.
Buff.
Red Hearts.
Golden Brown.
Dark Brown.
Gun Metal.
Green.

The variety of colours enables the builder to obtain the individual note in the exterior. TREGIL ROUGHS Full Range is a careful blending of harmonious shades to produce the rich Turkish rug effect that is justly popular among the more artistic architects. We are ready to blend according to the one effect demanded by surroundings. This is the only factory between the Great Lakes and the Mountains capable of supplying rich colours in more than two distinct shades.

TEXTURE. A brick is a colour and surface unit. The good architect demands life and variation in a brick surface. A rough-textured surface softens the glare, wards off monotony, and brings out the colour and design of brickwork. Our TREGIL ROUGHS are medium rough, will not catch dust, and are not fantastic. Such rough texture will appeal to the owner more and more every year.

PAVING BLOCKS. We manufacture paving brick and paving block. These will fulfil any moderate requirement in pavement work. They are being used by the CITY OF CALGARY. We supply the best quality at moderate prices.

THE OHIO QUARRIES COMPANY

CITIZENS BUILDING,

CLEVELAND OHIO.

PRODUCT. We produce "BUCKEYE GRAY" SANDSTONE, a stone that is particularly noted for its uniformity of texture and colour. In colour it does not have the dull or lifeless appearance of many stones or imitations of stone.

Our stone is about 95% silica, and it is, therefore, a splendid fireproof material, much superior to Granite, Limestone or Marble in this respect.

Crushing strength: 9,000 pounds per square inch.

LIEUTENANT-GOVERNOR'S RESIDENCE, TORONTO

PRICE. The price is uniform and well known to contractors generally, so that architects need have no hesitation in specifying "BUCKEYE GRAY" SANDSTONE from the Ohio Quarries Company, Cleveland, Ohio; the price will not be increased by reason of such specification.

Many discriminating architects give us this exclusive specification.

POST OFFICE MANSFIELD, OHIO.

SAMPLES. We shall be pleased to furnish architects, contractors, etc., with samples and other information upon request.

REFERENCES. The following are a few of the buildings in which "BUCKEYE GRAY" SANDSTONE was used:

Carnegie School, Toronto; School of Higher Education, Montreal; Oakwood High School, Toronto; Lieutenant-Governor's Residence, Toronto (cut stone trimmings); General Electric Co. Bldg., Toronto; Memorial Hall, University of Toronto; Main City Library, Toronto; Osgoode Hall, Toronto; Lansdowne School, Toronto; Riegal School, Toronto; Homewood School, Toronto; Imperial Bank of Canada, Winnipeg; N.W. Travellers' Commercial Association Bldg., Calgary; First Church of Christ, Scientist, Ottawa; numerous Post Offices, Court Houses, Banks, Churches, and other prominent public and private buildings in the United States.

THE ROMAN STONE CO., LIMITED

FOR QUEBEC:
T. A. MORRISON & CO.,
204 ST. JAMES ST., MONTREAL.

HEAD OFFICE:
1060 YONGE STREET,
TORONTO.

PATTERN SHOP:
FOUNDRY AND STONE YARD,
WESTON, ONT.

PRODUCTS

ROMAN STONE to architects' details. "ROMAN STONE" is a registered trade mark. The process is protected by the Stevens patent and has been brought to great perfection.

The stone is CAST in sand moulds, and is composed of crushed marble and selected cement, in the proportion of $3\frac{1}{2}$ to 1, and stands a test of over one ton to the square inch.

It is dressed and tooled after maturing.

GRAPHIC ARTS BUILDING, TORONTO. E. S. BAKER, ARCHITECT

ADVANTAGES.

OVER NATURAL DRESSED STONE.

"ROMAN STONE" can be reinforced to carry any load.

It can be easily set, as hooks are cast in the top of each stone.

Ashlar can be firmly bonded by wall ties cast in the backs of the stones. It has no seams, stains, flint or other imperfections. We make no second grade of stone.

OVER OTHER ARTIFICIAL STONE, which is made by the "dry process," being rammed into wooden moulds.

"ROMAN STONE" can be cut or carved, as it is the same quality throughout.

"ROMAN STONE" is perfectly crystalized, on account of abundance of water in the mixture, which runs into the sand moulds keeping the stone saturated for days.

"ROMAN STONE" has greater density and toughness, owing to the method of casting in sand.

MACHINE TOOLING is possible after the stone is matured and gives a better finish than tooling secured by wooden moulds.

COST.

The price of "ROMAN STONE" is practically always lower than that of cut natural stone, sometimes being as much as 50% less. The greatest difference is found in a design which calls for repetition of complicated or ornamental details.

Samples sent on request. Estimates given promptly. Send plans.

ATLANTIC TERRA COTTA COMPANY

1170 Broadway, New York, N Y

Largest Architectural Terra Cotta Company in the World.

Cable Address "Cottagrra," New York, via Western Union or Commercial Cable

Plant 1	Tottenville, S I, N Y	Successor to	Canadian Agencies
Plant 2	Perth Amboy, N J	The Atlantic Terra Cotta Co.	Calgary, Alberta — Montreal, Quebec
Plant 3	Rocky Hill, N J	Excelsior Terra Cotta Co.	Toronto, Ontario — Winnipeg, Manitoba
Plant 4	Perth Amboy, N J.	Perth Amboy Terra Cotta Co	And Buffalo, N Y., U S A
(*Plant 4 Faience only.*)		Standard Terra Cotta Works	

PRODUCTS. Architectural Terra Cotta; Faience; Garden Pottery of exceptionally high grade.

Architectural Terra Cotta. Lustrous glazed, matt glazed, and ordinary surface in any one of many colours.

Faience. Polychromatic combinations in great variety of soft and bright colours.

Garden Pottery. Garden vases, jars, sundial pedestals, etc., in many distinctive colours.

APPLICATION. Atlantic Terra Cotta is used for exterior and interior construction and decoration. It possesses every essential quality of a practical structural material, and possibilities for modelling and colour treatment that are unique. It may be used exclusively or in connection with any other building material, matching or contrasting in surface, texture and colour.

QUALITIES. Practical. Atlantic Terra Cotta is absolutely unimpaired by fire or weather; it stands any necessary compression when properly constructed, and is permanently durable.

Decorative. It is easily modelled in architectural design or figure work, and the possibilities for colour treatment are practically unlimited.

Mechanical. Accurate alignment and close-fitting joints, obtained by machine grinding, are prominent characteristics of Atlantic Terra Cotta.

MODELLING. The Atlantic Modelling Departments are experienced in the various styles of architectural ornament and fully able to execute figure work. Atlantic modelling has character and strength, is free from constraint and thoroughly consistent with the desired precedent. The models in a finished state are subject to the architect's revision.

COLOURS. Standard. Comprises the grays, reds, browns, buffs and granite colours, with ordinary finish (similar to smooth limestone).

Glaze. Lustrous or matt surface, comprises white and the various shades of cream. The lustrous finish is similar to polished marble, and the matt to smooth but unpolished marble.

Faience or Polychrome. Comprises all the brighter colours greens, yellows, blues, etc. Faience colours are made in several textures, may be used in any desired combination, and are interchangeable with the other two classes. Atlantic bright gold is a unique Terra Cotta colour, and makes a permanent gold commercially possible.

Softness of tone and texture gives Atlantic Faience colours the distinction of the unusual without suggestion of the bizarre. There are few fixed standards; generally new shades are made according to the architect's ideas for every contract of importance.

DELIVERY. Shipments are made *on time* according to prearranged schedule dates. The efficiency of Atlantic service greatly discounts the possibility of delayed deliveries.

FACILITIES. The varying size of the four Atlantic factories in the North insures the same high quality and excellent service on large and small contracts.

INFORMATION. A card to the Atlantic Terra Cotta Company, New York, will bring illustrated booklets and other information.

COST. Every piece of Atlantic Terra Cotta is made for the building in which it is to be used, and is designed to occupy a certain place in the building. Prices are based entirely upon estimates made from the architect's plans and specifications. Plans forwarded for estimate to main or any branch office receive immediate attention. In general, the price of Atlantic Terra Cotta will range from twenty to fifty per cent. lower than other high-class structural materials, and in the case of a design that calls for extensive or intricate modelling the saving will be particularly great.

Copyright, H. C. Mitchell, N Y
Woolworth Building, New York
Entirely of Atlantic Architectural Terra Cotta on 4 elevations for fifty two complete storeys

THE NORTHWESTERN TERRA COTTA COMPANY

MAIN OFFICE AND WORKS: 2525 CLYBOURN AVE.

CHICAGO, ILL., U.S.A.

Canadian Pacific Railway Building, Toronto, Ontario.

ALL FOUR ELEVATIONS
OF THIS MAGNIFICENT
BUILDING ABOVE SECOND
STOREY CREAM COLOURED
SATIN FINISH
"NORWETA" ENAMEL
TERRA COTTA

THE HIGHEST OFFICE BUILDING IN THE BRITISH EMPIRE

CONTINUED ON NEXT PAGE

THE NORTHWESTERN TERRA COTTA COMPANY
CHICAGO, ILL.

WINNIPEG ELECTRIC BUILDING, WINNIPEG, CANADA.

C. S. Frost and Pratt & Ross, Architects.

Entire fronts faced with "Norweta" Terra Cotta from above second story cornice to skyline. Color—a Red Standard Granite; courses alternating light and dark.

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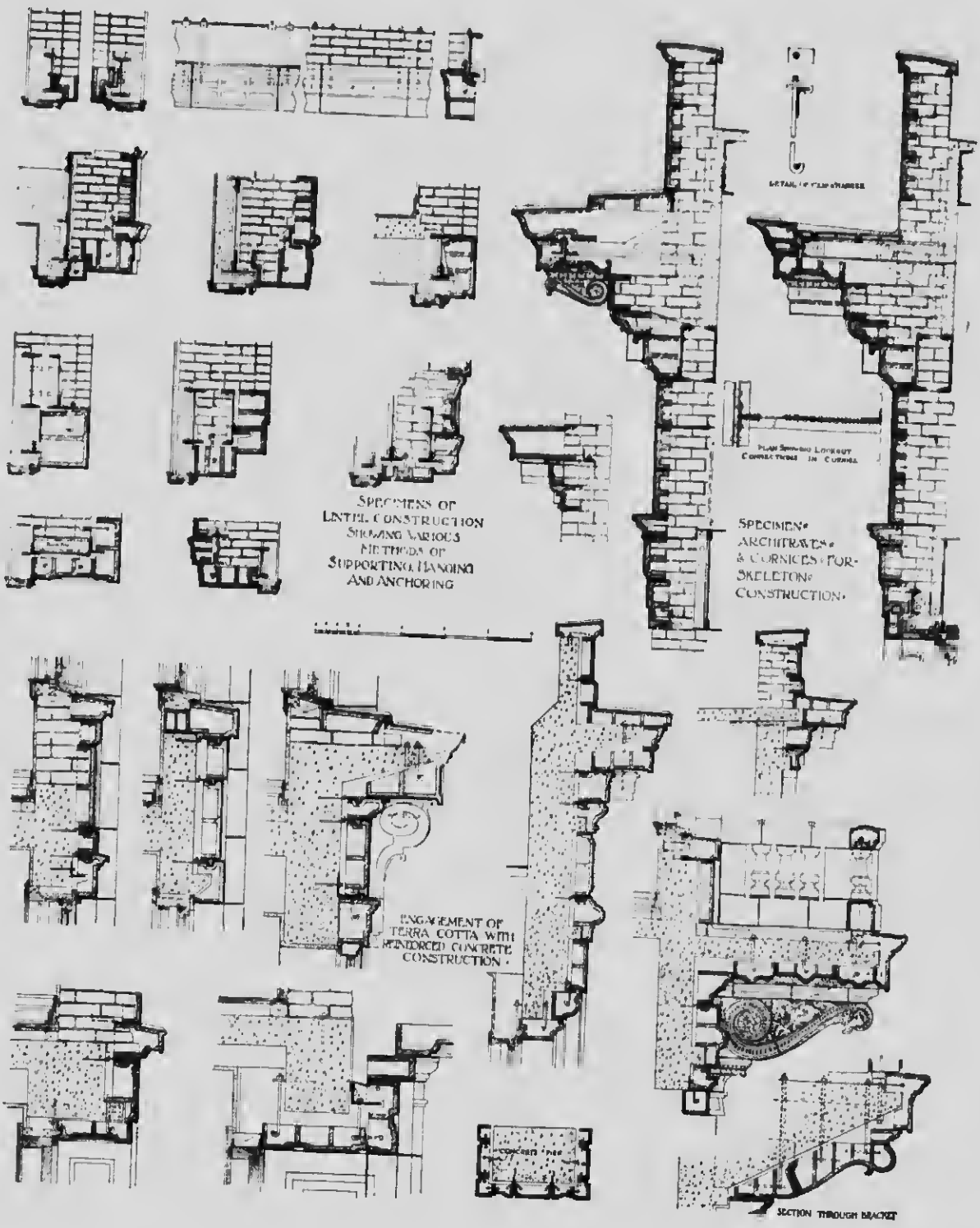

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THE NORTHWESTERN TERRA COTTA CO.

Presents the following brief and safe Specification for Architectural Terra Cotta:

GENERAL CONDITIONS Specifications for the Terra Cotta for located at

All Terra Cotta work for this building is shown as coloured [illegible]ORED on the General Drawings, and this Contractor shall furnish and deliver

F.O.B. CARS OR BOAT
AT BUILDING
AT BUILDING AND ERECT

All Terra Cotta thus shown

All material and workmanship must be strictly first class and in accordance with General Drawings, Details and Specifications, and the absolute durability of the material must be guaranteed. It must be burned as hard as the Standard Sample of the Northwestern Terra Cotta Company, and must have webs or partitions in sufficient number to give it a compressive strength equal to that of the brickwork.

Contractor for Terra Cotta to submit promptly to Architect for his approval or correction, diagrams showing all points involving special construction which may not be clearly shown on Architect's drawings, as, for instance, pointing, bonds, bed anchoring, engagements with structural iron or concrete, construction of cornices, railings and transoms, arrangement of gutters, downspouts, etc.

All work must be straight and true; all material must be laid out and fitted to exact sizes at the factory, with allowance made for joints of such thickness as directed by Architect or agreed upon; joints for enamel work to be ground on rubbing bed to a thickness not to exceed one eighth of an inch. Full setting diagrams, showing corresponding marks on the Terra Cotta pieces, must be provided.

No discoloured, painted, cracked or spalled pieces will be accepted.

The colour to be uniform and according to sample selected. Contractor for Terra Cotta will, on request of Architect furnish such copies of shop drawings as may be desired by other Contractors whose work engages with Terra Cotta.

SURFACE. (Use the following terms to properly designate material desired):

BRIGHT OR GLOSSY ENAMEL.	Applying to a full bright, shiny surface.
DULL MATTE ENAMEL.	Applying to a dull surface.
STANDARD	Applied to colours produced by natural body colour or surface sprayed with a clay coating.
POLYCHROME	Where two or more colours are applied on enamel or standard surface, specifying 2, 3, 4 or more colours on same piece.
STANDARD GRANITE	A mottled surface on Standard Terra Cotta (a granite effect).
GLAZED GRANITE	A mottled glazed surface (a polished granite effect).

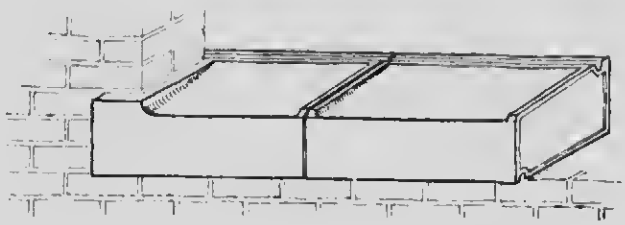
MODELLING. All ornaments to be modelled by experienced artists. Contractor for Terra Cotta shall promptly submit to Architect photographs of ornament for his approval or correction, or Architect will inspect ornamental work at factory.

SURFACE FINISH.

On Bright Glossy or Dull Matte Enamel	Plain Surfaces	Usually smooth finish.
	Mouldings and Washes	Usually smooth finish.
	Background of Ornament	Smooth or Hatched.

On Standard Terra Cotta—An irregular drove of eight lines to an inch.

JOINTING. Raised joints are the most suitable both for enamels and Standard material.



ANCHOR HOLES. Provide anchor holes necessary to secure the Terra Cotta firmly to structural steel, brickwork, concrete, etc. All wall and strap anchors to be cut and bent on scaffold and material for these to be supplied by Mason.

SETTING. Mason will provide and erect scaffolding, and deliver on scaffold all mortar required to set the Terra Cotta, and will furnish hoisting apparatus and power to raise Terra Cotta to required heights.

The Mason will fill and back up all the Terra Cotta when set in place on the wall, and will clean down all Terra Cotta, together with brickwork, when completed.

The Carpenter will do all centering required and protect with board covers the Terra Cotta set in place, where considered necessary in the judgment of the Superintendent.

NEW YORK ARCHITECTURAL TERRA COTTA COMPANY

ONE FACTORY ONE MANAGEMENT FOR 28 YEARS.

HIGH-GRADE ARCHITECTURAL TERRA COTTA.

MAIN OFFICE AND WORKS:

401 VERNON AVENUE,

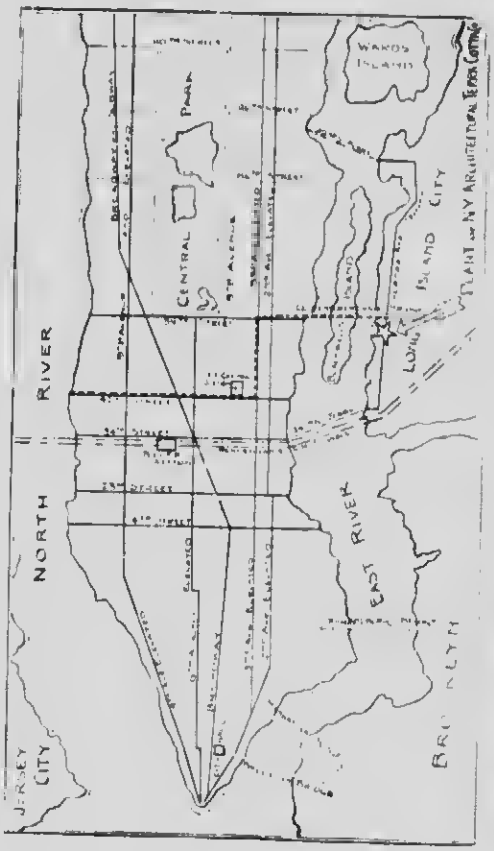
BOROUGH OF QUEENS, NEW YORK CITY, N.Y.

TELEPHONE: ASTORIA 7000. CABLE ADDRESS: "TERRA-COTTA."

PRODUCTS — HIGH-GRADE ARCHITECTURAL TERRA COTTA, PLAIN, ORNAMENTAL and FAIENCE, for interior and exterior decoration and construction, in full variety of colors and finishes, including polychrome, full glaze, satin finish, matt glaze, semi-glaze and limestone. Pure white full glaze, cream matt and granite a specialty. All work absolutely non-absorbent and impervious under all atmospheric and climatic conditions.

QUALITY. — We have but one grade, the best, and prefer to do work for particular people who want and demand that kind of service. All work is carefully inspected, properly fitted and joints machine ground before leaving our factory.

LOCATION — One factory only in the City of New York, on the Long Island side of the East River, and practically under the Queensboro Bridge. Seven minutes from Third Avenue and Fifty Ninth Street, Manhattan; fifteen minutes from Fifth Avenue and Forty Second Street.



DIRKS BUILDING, VANCOUVER, BRITISH COLUMBIA
SOMERVILLE & PUTNAM, ARCHITECTS

DELIVERY — For distant operations we load rail shipments on freight cars at our own yard or water shipments from our private dock at factory site. All work is carefully packed in salt hay by expert packers, obviating likelihood of breakage.

FACILITIES — MEN. The practical work and technical experience and research of twenty eight years have produced for us a corps of experts upon every point in Terra Cotta construction and finish.

MACHINERY. Factory is equipped with the most modern and up-to-date equipment. Our kilns are oil-fired, so that even temperature of the burning is assured.

ESTIMATING — Our estimating department is not only prepared to figure with you, but stands ready to supply any special information that you may desire, to the end that, with our equipment and experience, plus your ideas, we may see if we cannot produce the effect that you wish to attain.

FEDERAL TERRA COTTA COMPANY

TRINITY BLDG., 111 BROADWAY, NEW YORK. MONADNOCK BLDG., CHICAGO ILL.

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ARCHITECTURAL TERRA COTTA.

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JOHN LINDSAY, 24 Toronto Street, Toronto
HYDE & SONS, 12 Bleury Street, Montreal
JOHN SUTHERLAND, 428 Pender St, Vancouver
ALSIP BRICK TILE & LUMBER CO
Builders Exchange, Winnipeg

PRODUCTS. ARCHITECTURAL TERRA COTTA for EXTERIOR and INTERIOR USE, manufactured in the fullest lines of gray, buff and red shades, in STANDARD VITREOUS finish; MATT and FULL GLAZED finish in white, cream and polychrome; specialties in an unexcelled line of GRANITE COLOURS with GLAZE and DULL finishes.

ROYAL BANK, TORONTO

Ross & MacDonald, Architects — Gentze & Fuller Co., Builders
Limestone Coloured Vitreous Gray Terra Cotta from Second Stories Caps in Cornice

OTHER REPRESENTATIVE CONTRACTS

BUILDING	LOCATION	ARCHITECT	BUILDING	LOCATION	ARCHITECT
Ritz Carlton Hotel	Montreal	Warren & Wetmore	Terminal Station	Detroit	Warren & Wetmore
Metropolitan Bank	Toronto	Darling & Pearson	Otis Building	Chicago	Hubbard & Roche
Central Technical School	Toronto	Ross & MacDonald	North Western Mutual Life	Milwaukee	Marshall & Fox
Bishop Street Apartment	Montreal	Charles A. Mitchell	Equitable	New York	Ernest R. Graham
Union Bank	Toronto	Bond & Smith	Biltmore Hotel	New York	Warren & Wetmore

CHURCH, ROSS & COMPANY

40 Hospital Street,

MONTREAL.

SOLE CANADIAN AGENTS FOR

THE DENIVELLE HYDRAULIC COMPOSITE STONE COMPANY.

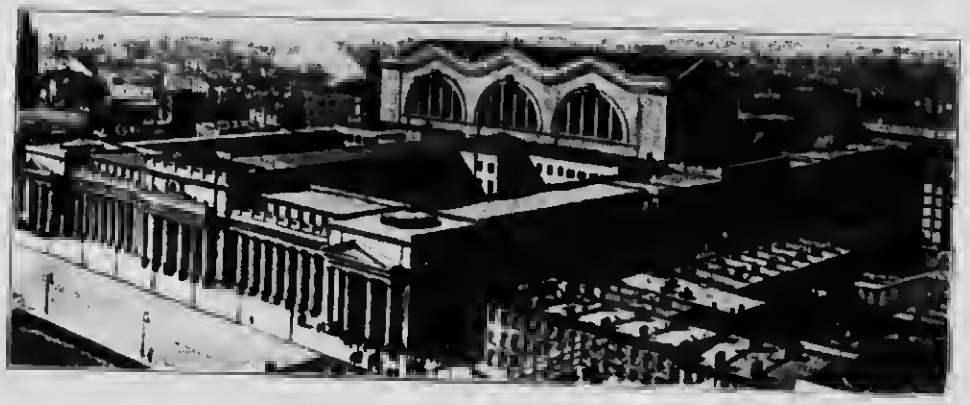
Office and Works:

609-619 West 55th Street,

NEW YORK.

PRODUCTS. We produce a genuine SUBSTITUTE, not an Imitation Stone, having 10 Standard Grades to select from, beside others as specialties.

Over 200,000 feet of Composite Travertine Stone, an imperishable material, was used in the Pennsylvania Railroad Terminal, New York City a fact which speaks for itself



Pennsylvania Railroad Terminal, New York
McKim, Mead & White, Architects

SERVICES. We are prepared to give figures on the most extensive building where our composite stone can be used advantageously, both for exterior or interior finishes.

CORRESPONDENCE. We solicit correspondence with architects, and are always ready to furnish estimates and reliable information.

CHURCH, ROSS & COMPANY

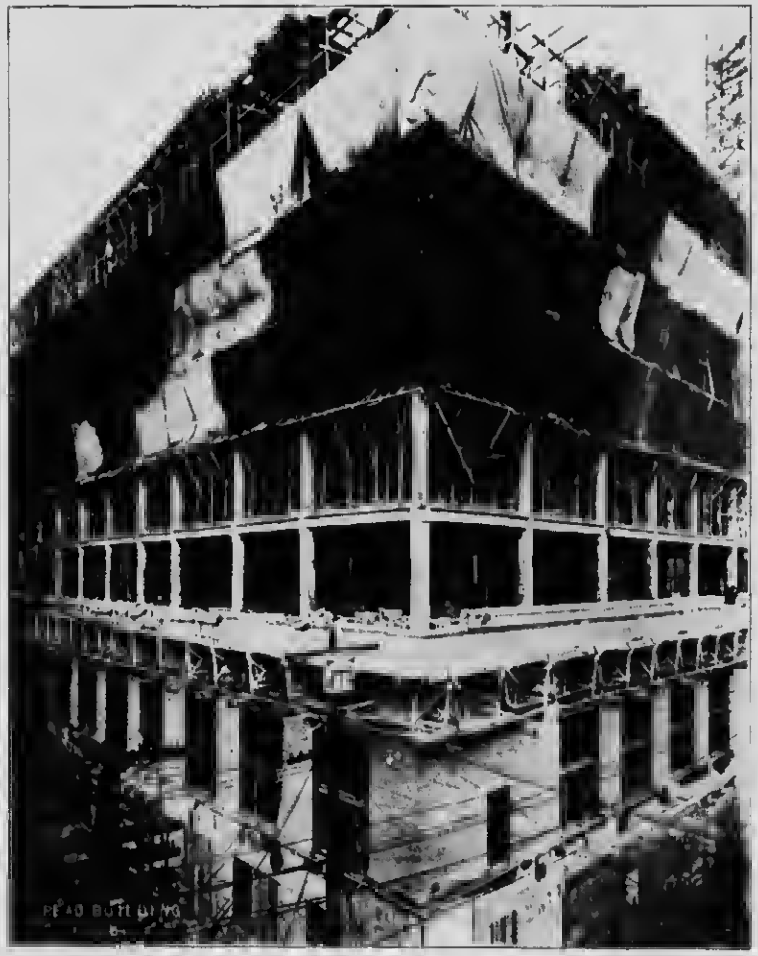
40 Hospital Street,

MONTREAL, QUEBEC.

SERVICES. We are prepared to design and erect in Reinforced Concrete, buildings of any kind requiring fireproof construction, including fireproof partitions.

We also give special attention to Concrete Sidewalks.

ILLUSTRATION. The Read Building, which occupies the block bounded by St. Alexander, Lagauchetiere, Hermine and Jurors Streets, Montreal, was built by us on the cantilever flat slab system of reinforced concrete construction, at the rate of about a floor each week. Each floor contains 22,000 square feet of space and is sustained by 94 columns running from 30 inches at bottom storeys to 16 inches at top and is capable of sustaining loads equal to beam construction.



The above cut shows the Read Building as on December 28th, 1912, with some 35,000 square feet of tarpaulin enclosing the three floors, which are maturing under hot air application. This is a feature of our construction, and enables us to continue effective operations even in zero weather, and at the rate of about one floor containing 22,000 square feet of surface, with 94 columns, each week.

REFERENCES. A few representative concrete buildings done by us.

St. Lawrence Sugar Refining Co. Building.
The Ames Holden Company (Factory), Montreal
The Mitchell Company (Warehouse), Montreal
Bell Telephone Co. (St. Louis Exc.), Montreal
Sherwin Williams Co. (Storage Bldg.), Montreal
Singer Mfg. Co. (Kilns and Storage), St. John's, Que.
The Geo. W. Reed Co. Limited (Factory), Montreal
Sherbrooke Apartments, Montreal
Dominion Oilcloth Co., Montreal
Canadian Bank of Commerce, Montreal.
Royal Victoria Hospital, Montreal

TRUSSED CONCRETE STEEL CO. OF CANADA, LIMITED

HEAD OFFICE AND WORKS, WALKERVILLE, ONTARIO.

T. H. STEVENS, 73 JORDAN ST., TORONTO
G. B. REYNOLDS, 128 CORISTINE BLDG., MONTREAL
BRANCHES:
O. E. HARMON AND A. ST. CLAIR RILEY, UNION BANK BLDG., WINNIPEG.
R. E. W. HAGARTY, 52 HUTCHISON BLDG., VANCOUVER, B.C.

KAHN TRUSSED BAR.

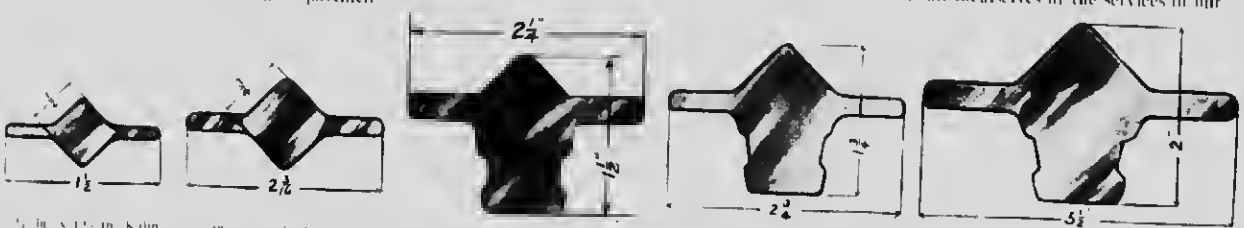
The Kahn Trussed Bar for reinforcing concrete consists of a main horizontal bar and rigidly connected diagonal shear members. The cross section of the bar has two horizontal flanges projecting at opposite sides. These flanges are sheared up at intervals to form the rigidly connected diagonals making a unit of main bar and shear members.

Rigid connection of shear members is the one essential requirement of properly constructed reinforced concrete beams. It is necessary for strength, safety, economy, durability and fireproofness of the finished structure.

The Kahn Trussed Bar, the main product of the well-known Kahn System of Reinforced Concrete, has a record of successful use in over 10,000 structures in this country and abroad, and has received the endorsement of the United States Government, architects, engineers and builders.

The Engineering Department of the Trussed Concrete Steel Company prepares, without charge, detail drawings of reinforced concrete work in any structure in which Kahn Trussed Bars are used. The drawings show clearly the exact location of each reinforcing bar and the detailed size of all the concrete work.

Each bar is designed for its distinct place in the structure, and is plainly marked so that the builder can tell from the drawings just where it belongs. We especially ask architects, engineers, and builders to avail themselves of the services of our Engineering Department.



SECTIONS OF KAHN BAR.

¾ in. x 1½ in. Kahn Trussed Bar. Weight, 1.1 pounds per foot. Area, 0.31 square inches. Standard length of diagonals, 6 inches.

1 in. x 2 ¼ in. Kahn Trussed Bar. Weight 2.7 pounds per foot; Area, 0.79 square inches. Standard length of diagonals, 12 inches. Special lengths, 8 inches, 18 inches and 24 inches.

1½ in. x 2½ in. Kahn Trussed Bar. Weight, 4.8 pounds per foot. Area, 1.41 square inches; Standard length of diagonals, 21 inches. Special lengths, 18 inches and 30 inches.

1¾ in. x 2¾ in. Kahn Trussed Bar. Weight, 6.8 pounds per foot; Area, 2.00 square inches; Standard length of diagonals, 21 inches; Special lengths, 18 inches and 30 inches.

2 in. x 4½ in. Kahn Trussed Bar. Weight, 10.4 pounds per foot; Area, 3.00 square inches; Standard length of diagonals, 30 inches. Special length, 24 inches.

RIB BARS.

The Rib Bar for reinforcing concrete is a special rolled section with a series of cross ribs so designed as to secure maximum grip on the concrete.

The Rib Bar is manufactured from the highest grade of open hearth steel with an elastic limit of 50,000 lbs. per square inch. The quality of steel is such as to give a bar of greater strength without sacrificing ductility.

The Rib Bar has the greatest bonding qualities and ultimate strength of any bar of its type.

Supplied in all sizes varying by eighths of an inch from ¾ inch diameter up to 1¼ inch, and in any length up to sixty feet.

Any special grade of steel can be provided in Rib Bars if the order is of sufficient size, and time is given to secure special rolling.

RIB METAL.

A REINFORCING MATERIAL FOR CONCRETE SLABS, WALLS AND CONDUITS.—Consist of a series of nine straight bars or ribs, rigidly connected by cross members formed from the same sheet of steel. These cross members accurately space and thoroughly anchor the main bars in the concrete, providing a perfect cross reinforcement against temperature and shrinkage strains.

Being a series of nine bars handled in one piece, Rib Metal saves labour and assures accuracy in placing.

RIB METAL, is stiff and rigid, not pliable and wiry. When placed in the concrete it stays where it is placed.

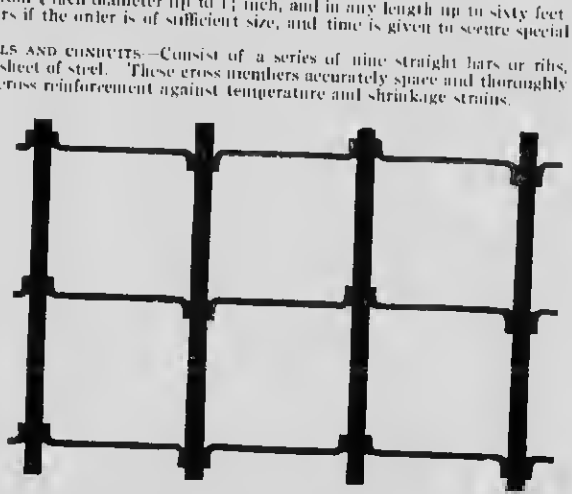
RIB METAL, has the following advantages as a reinforcement for floor and roof slabs:

1. It is in the form of a mesh.
2. The main members span in the shortest straight line between the supports.
3. The main bars are accurately located and anchored in the concrete by the cross members.
4. The reinforcement stays located just where it is placed.

RIB METAL is also supplied in curved sheets, the bending being done in our shops to any curve desired. This makes Rib Metal especially useful as a reinforcement for sewers and conduits.

RIB METAL is manufactured from medium open hearth steel, the best quality of steel for reinforcement.

RIB METAL is furnished in seven sizes of mesh 2-inch, 3-inch, 4-inch, 5-inch, 6-inch, 7-inch and 8-inch and in lengths up to 18 feet.



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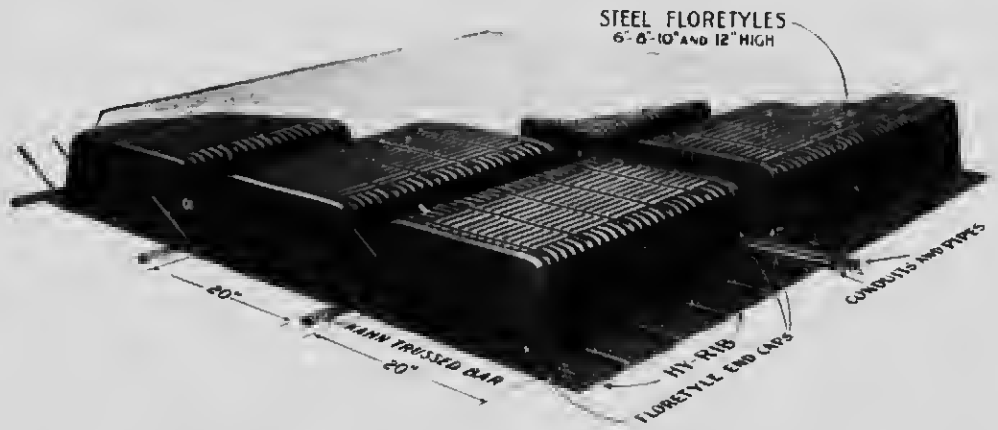
KAHN SYSTEM OF REINFORCEMENT.



STEEL FLORETYLES.

Steel Floretyles are deeply corrugated steel ribs open on the underside. The bends at the corners and the ribs on the top provide exceptional stiffness against deformation and great rigidity in supporting loads. The narrow reinforced concrete joists between the Floretyles carry the loads to the supports. Ends of Floretyles lap with a tight joint. This style construction effects a great saving in concrete, steel, centering and weight.

For flat ceilings, Hy-Rib is used on the underside. The bottom edges of the Floretyles are serrated to straddle the ribs of the Hy-Rib and engage in the mesh. Floretyles are used with one-way reinforcement and Floredomes with two-way reinforcement. Both possess the same marked advantages over terra cotta tile.

Rows of Floretyles are closed by means of End Tyles, 2 ft. long, or End Caps, fitting over the Floretyles.

PROPERTIES OF STEEL FLORETYLES.

Depths: 6 in., 8 in., 10 in., and 12 in. Width at Base: 20 inches.

Standard Lengths (nominal): 4 feet and 3 feet. Actual lengths are one inch greater, to allow for end lap of one corrugation.

Furnished either with serrated edges or straight edges.

HY-RIB.

HY-RIB.

Hy-Rib consists of a perfect steel lath surface stiffened by rigid high ribs. The ribs and the lath are manufactured from a single sheet of steel, making it a complete unit of lath and studs.

No centering is required where Hy-Rib is used in concrete floors and roofs, as the ribs give sufficient strength and rigidity. In walls and partitions Hy-Rib does away with the use of studs. The lath surface is straight and true, and the expansion is such as to provide a perfect climb with a minimum amount of plaster.

Uses for Hy-Rib are found in every field of building operation: in construction work of all kinds, Floors, Roofs, Walls, Partitions, Ceilings, and Furring. Curved Hy-Rib built in our shops is used for Arched Floors, Culverts, Conduits, Sewers, Silos, Tanks, Reservoirs and Tunnels.

Hy-Rib is supplied in sheets 10½ inches wide, measured from centre to centre of the outside ribs. One lineal foot of each sheet covers ⅞ of a square foot of roof, floor, or wall surface. No allowance need be made in ordering for side laps, as these are provided in the Hy-Rib. End laps of 2 inches should be allowed where splice is made over the supports, otherwise 8 inches. Ribs of Hy-Rib are ¾ inches high and 3½ inches apart.

Standard lengths of sheets are 6 feet, 8 feet, 10 feet, and 12 feet. Intermediate and shorter lengths are cut from standard lengths. Waste in cutting is charged to purchaser. In ordering, always state length of sheet required.

Hy-Rib is furnished in three thicknesses of metal represented by United States Standard Gauges: No. 28, No. 26, and No. 24. Other gauges, as desired, can be supplied in reasonable time.

Hy-Rib is manufactured from the highest grade open-hearth rolled steel plates.

Cross sectional areas of Hy-Rib per foot of width including side laps: 28 Gauge, .165 square inches; 26 Gauge, .198 square inches; 24 Gauge, .264 square inches.

CONCRETE PAINTS AND WATER-PROOFINGS.

TRUSSED CONCRETE CHEMICAL PRODUCTS FOR WATERPROOFING AND FINISHING CONCRETE

KAHN SYSTEM STEEL SASH.

See also advertisement on page 329

THE PEDLAR PEOPLE LIMITED

HOME OFFICE:

OSHAWA, ONTARIO.

BRANCHES MONTREAL, OTTAWA, TORONTO, LONDON, CHATHAM, WINNIPEG.

PRODUCT.

Sole Sales Agents in Canada for CLINTON ELECTRICALLY WELDED WIRE, manufactured by THE CLINTON WIRE CLOTH COMPANY, Clinton, Mass, U.S.A.

CLINTON REINFORCEMENT.

THE MATERIAL. Clinton Electrically Welded Wire is a wire mesh reinforcement fabricated from a special grade of steel wire having an ultimate tensile strength of from 60,000 to 85,000 lbs. per square inch.

USES. The material is especially adapted for reinforcement in concrete floors, roofs, walls, sewers, reservoirs, levees and all kinds of slab construction. It is also used to special advantage as a wrapping for steel in all kinds of work involving the covering or protection of steel with concrete.

THE ELECTRIC WELD. Transverse and longitudinal wires are connected by an absolute and perfect cross-weld actually fused together.

THE RECTANGULAR MESH. There are no zigzag or diagonal members. When used in floor or roof slabs, the longitudinal wires resist the main tensile stresses, while the transverse wires, which act as spacers for the longitudinals, serve to distribute concentrated loads and to prevent cracking due to changes in temperature.

THE PERFECT BOND. The transverse wires, which are securely and absolutely connected to the longitudinals, provide at each welded point an absolute barrier against movement in the concrete.

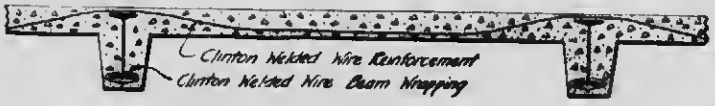
UNBROKEN CONTINUITY. In floor and roof slabs perfect continuity is obtained—no laps, no splices, no misplaced steel, but always the full value of the reinforcement, representing exactly what the plans call for.

EASE AND ACCURACY OF INSTALLATION.—It eliminates expense and uncertainty involved in the placing and wiring of loose rods. Great quantities can be laid in a very short time by the most unskilled labourer with absolute assurance that every reinforcing unit is in its proper position.

GALVANIZING.—All Clinton Welded Wire is thoroughly galvanized, which offers a perfect protection against rust and corrosion.

CLINTON FLOORS.

The various floor slabs of the type as shown by sketch and as herewith tabulated in the table have actually been tested in New York City and officially approved by the Bureau of Buildings for the live loads as given.



APPROVED CLINTON FLOOR SLABS.

Span C C Beams.	Approved Live Load Lbs. per Sq. Ft.	Thickness of Slab.	Concrete.	Clinton Welded Wire Reinforcement. Longitudinals — Gauge.	Longitudinals — Spacing.	Transverses. — Gauge.	Transverses. — Spacing.	How Specified
6′ 0″	150	4″	1 : 2 : 5 Cinder	No. 8	3″	No. 10	12″	3 x 12 8 10
6′ 6″	300	4″	1 : 2 : 5 Cinder	No. 5	4″	No. 9	12″	4 x 12 5 9
6′ 6″	400	4″	1 : 2 : 5 Cinder	No. 4	3″	No. 9	12″	3 x 12 4 9
7′ 6″	200	4″	1 : 2 : 5 Cinder	No. 7	4″	No. 10	12″	4 x 12 7 10
8′ 0″	250	4″	1 : 2 : 5 Cinder	No. 5	3″	No. 9	12″	3 x 12 5 9
15′ 0″	150	6″	1 : 2½ : 5 Stone	No. 4	2″	No. 8	8″	2 x 8 4 8

STOCK.

We carry in stock a large assortment of Clinton Fabrics, and can make immediate shipment at prices which will prove interesting.

INFORMATION.

For information, printed matter and prices, address home office of The Pedlar People Limited, or any of their various branches.

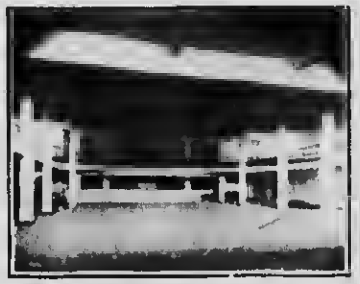
CLARENCE W. NOBLE

ASSOC. M. AM. SOC. C.E. ASSOC. M. CAN. SOC. C.E.

417 NEW BIRKS BUILDING, MONTREAL. 117 HOME LIFE BUILDING, TORONTO. 905 ELECTRIC RAILWAY CHAMBERS, WINNIPEG

REPRESENTED BY HERRINGBONE LATH AGENTS EVERYWHERE.

CONCRETE REINFORCEMENT



GYMNASIUM, OKLAHOMA CITY HIGH SCHOOL.

THEATRE BALCONY, BURNS THEATRE.

MY METHODS. I supplement architects' plans by laying out reinforced concrete details, either to the architects' or my own calculations. These calculations are made for unpatented reinforcement, either plain or twisted bars. I furnish you the bars for these details, cut to length, either straight or bent and ready to place as you may prefer. All this is for a lump sum price for the job.

YOUR ALTERNATIVES. Don't lose sight of the reason you buy reinforcing steel. You need not insist that the reinforcement in a certain beam should *cost* a stated amount and *weigh* a certain amount. You do demand, though, that it should have a certain amount of strength. Obviously, what you want is a given amount of strength for the least amount of money.

A Patented, and, therefore, monopolized, bar is certainly not the best — that is, unless you feel inclined to give your money away. The Patent raises the price, but not the strength. The reason that you use a patented bar is that their salesmen give you a "free" design. So do I. Only I frankly charge for my design and add the price to the cost of the most efficient reinforcement. As a result, I can duplicate the strength furnished in any patent bar design, furnishing the same or better service and reducing the cost of the reinforcement by a third.

A FABLE. Two automobilists ran out of gasoline. Each had but fifty cents. One bought his supply at a drug store. It cost him fifty cents a pint and came in a glass bottle with a parchment top. The other bought his in a tin can at a garage, at twenty-five cents per gallon. The drug store did the most advertising. Guess which man got his car home.

Moral. The concrete reinforcement that costs the least per unit of strength is the kind a sensible man will use.

PERFECTION WIRE MESH. A rectangular wire reinforcement made with No. 9 gauge, carrying wires spaced 3 inches or 4 inches apart and No. 9 gauge cross wires, $8\frac{1}{2}$ inches, 13 inches, $16\frac{1}{2}$ inches or 22 inches apart. The crossing wires are bound together by a third wire, bent to give a positive attachment without kinking any of the main wires. All material is high carbon, cold drawn galvanized steel wire, of exceptional strength. Standard sheets, 4 feet wide by 250 feet long, shipped rolled.

STRENGTH. The four-inch spacing of carrying wires gives a mesh equivalent in strength to 10 gauge 60 lb. standard expanded metal.

ADVANTAGES. Continuous bond from one wall of building to the other. No danger whatever from faulty lapping, because there is no lap. Low cost of mesh and economy in laying, both in material and labour. Certainty of perfect quality throughout. A wire cannot be drawn if it has a flaw in it.

Kindly mention SPECIFICATION DATA when inquiring.

PLACING OF PERFECTION MESH

C. A. P. TURNER

M. C. & Soc. C.E.
M. Am. Soc. C.E.

CONSULTING AND CONTRACTING ENGINEER.

"MUSHROOM SYSTEM" OF REINFORCED CONCRETE CONSTRUCTION.

STEEL AND REINFORCED CONCRETE BRIDGES AND BUILDINGS.

MAIN OFFICE: SIXTH FLOOR, WALKER BURTON BUILDING,
MINNEAPOLIS, MINN.

CANADIAN OFFICES:

WINNIPEG:
FOSNESS AND SIVERSON,
1005 LINDSAY BLDG.

CALGARY:
C. A. LORD,
LEESON & LINEHAM BLDG.

VANCOUVER:
A. P. HUECKEL,
VANCOUVER BLOCK.

PRODUCTS. AND SERVICES.

Inventor and Patentee of the "MUSHROOM SYSTEM" of Reinforced Concrete Construction, the practical Flat Slab supported directly on columns without the intervention of beams.

CONSULTING ENGINEERING WORK: BRIDGES and BUILDINGS.

ADVANTAGES.

"MUSHROOM" FLAT SLAB SYSTEM.

(1) The floor slabs are built so as to transport the load directly to the columns without the use of beams and girders and take full advantage of the extraordinary strength developed by slabs reinforced in several directions. "Mushroom System" floors are more economical for heavy loadings than any other construction

(2) The centering is simplified, thus reducing the cost of the temporary parts of the construction.

(3) The beams and girders, which interfere with light, cost money to plaster and finish, and reduce the clear storey height, are eliminated. The arrangement of the reinforcement is designed to secure a maximum efficiency of the material and place the maximum amount of steel around and over the tops of columns where shear and negative moments are the greatest.

(4) The flat ceiling so obtained gives free and unobstructed illumination from the windows, and permits the placing of partitions anywhere without regard to the floor, which is unusually rigid and solid, due to the fact that a part of the material, which in the beam type is placed in the rib, is consolidated in the slab, making the slab of unusual thickness, with an actual decrease in the total amount of material where the loads are at all heavy.

ADAPTATION AND CONTRACTS EXECUTED.

The "Mushroom System" has been used in every type of fireproof construction. The list embraces court houses, schools and State capitols, office buildings, warehouses, factories and manufacturing plants.

More than 1,500 important structures have been completed or contracted for during the first eight years that it has been on the market.

PATENTS

C. A. P. Turner, as the original inventor, has been granted patents covering the basic elements of *circumferential cantilever flat slab construction*. Fully protected by Canadian Patent No. 131567.

Reinforcing Steel in Place—"Mushroom System."

Test Load, 600 Lbs. per Square Foot. Deflection, $\frac{1}{16}$ Inch

Finished Interior—"Mushroom System."

PINCHIN, JOHNSON & CO. (CANADA), LIMITED

TORONTO, CANADA.

HALIFAX E. P. Stevens — MONTREAL — David McGill — WINNIPEG The Waite Fullerton Co., Ltd
ST. JOHN—W. H. Thorne & Co. Ltd — QUEBEC J. L. LaChance Ltd

CALGARY, EDMONTON, LETHBRIDGE — The Western Supply & Equipment Co., Ltd
SASKATOON, PRINCE ALBERT — The Saskatchewan Supply Co. Ltd
VANCOUVER, VICTORIA — Wm. N. McNeil & Co. Ltd

WATERPROOFING DEPARTMENT.

GENERAL. A special department, aside from their paint and varnish business devoted to the manufacture and sale of waterproofing materials under formulae of the A. C. Horn Company of New York.

An engineering branch has been added as a special feature to meet the needs of architects and contractors by providing specifications, which will be free for the asking. By consulting this department it will be possible to effect a saving in waterproofing construction. LET US PLAN THIS END OF YOUR WORK FOR YOU.

DEHYDRATINE No. 1. See Figs. 1, 2, page 40. A bituminous compound in liquid state for application on the inside of exterior building walls, thus preventing the penetration of moisture or dampness, can be plastered directly upon or used in connection with furring and lathing. Dampproofs superstructures. Forms an impenetrable film, rubber-like in consistency, from ground level to roof.

DEHYDRATINE No. 2. A colourless liquid for exterior masonry surfaces to prevent efflorescence and other discolorations, damp-proofs by exterior application. May be used on the interior of concrete containers to prevent leakage.

DEHYDRATINE No. 3. See Fig. 3, page 40. A liquid for backing up limestone, marble, granite, etc., thus preventing discoloration on exterior surfaces of such stone.

DEHYDRATINE No. 4. See Fig. 5, page 41. A liquid for exterior application on foundation walls, applied cold, easily applied and certain in results. Will not disintegrate and is unaffected by elements in the soil. *Cannot crack or peel.*

DEHYDRATINE MASTINEMENT. See Fig. 5, page 41. A rich bituminous cement requiring heating, then mopped on foundation surfaces after the manner of tar or pitch, used in conjunction with MINERVA IRISH FELT. Used generally when heavy heads of water are to be resisted.

DEHYDRATINE No. 5. A protective field coating for structural steel to prevent destructive influence due to contact with masonry surfaces. May be used in conjunction with RUST-BAAR.

DEHYDRATINE No. 6. See Fig. 5, page 41. A rich bituminous mastic for application on rough foundation surfaces; applied with a trowel. Safer and more permanent than ordinary felt and pitch or tar and less costly.

DEHYDRATINE SLATE AND TILE CEMENT. An elastic waterproof compound made in colours. This is an extremely tough material of putty like consistency, very durable and permanent.

DEHYDRATINE ROOFING COMPOUND. One of the Dehydratine family made in colours and applicable for all modern roofs.

"The Dehydratines possess elasticity which insures their permanence in the structure."

MINERVA IRISH FELT. See Fig. 5, page 41. Recognized by engineers as the best reinforcing agent in sub-structural work where pressure is encountered. Used in conjunction with DEHYDRATINE MASTINEMENT. A wool composition strongly fabricated will neither crack nor break.

RUST-BAAR. A protective shop coating for structural steel, used in conjunction with DEHYDRATINE No. 5.

HYDRATITE No. 1. (Powder). See Figs. 7 to 8a inclusive. Embracing what we were first to design... proportion to weight of cement for waterproofing concrete mass or applied when embodied in... "THE INTEGRAL METHOD"—a finely ground powder used in 1-2% concrete. Is a void filler and a void finder. Either incorporated in the cement as a plaster coating; two pounds to the bag.

HYDRATITE No. 2. (Paste). See Figs. 7 to 8a page 41. Used in the gauging mixture by adding one part of paste to every ten parts of water. Is an unstable, soluble agent decomposed by contact with the lime in cement, when it becomes a perfect emulsion, finding its way to all parts of the mass.

NOTE.—Hydratite, whether used in powdered or paste form, has the same ultimate effect, but is made in the two consistencies to meet individual preferences of the user.

KONCREX. A priming coat for cement floors—used to equalize the porosity of concrete before applying SYMENTREX.

SYMENTREX. A liquid concrete, applied as a paint to alleviate the dusting and abrading of concrete floors. Made either as a gloss enamel or flat finish. Adaptable for all exterior masonry surfaces to provide a water-shedding surface with colour effect.

SYMENTRIX. A near relative to SYMENTREX, for decorating plastered walls, thus providing a washable flat surface, artistic as well as permanent.

A. W. P. A paint in paste form—only requiring mixing with water. The resultant is waterproof and can be applied on damp surfaces with excellent results. The only effective paint on the market that can be successfully applied to damp surfaces.

ACORN WATERTITE MORTAR STAINS. Produced in all shades, either in dry or pulp. Colours are absolutely permanent. Renders joints waterproof.

BONDSIT. A powerful acidulated powder. When diluted with water forms an agent effective in bonding new to old concrete by simply washing the surfaces of the old concrete only to which the new is to be joined. This also applies in all cases where a cement mixture is to be plastered on a masonry surface (brick or concrete).

"THE FERRO-LITHIC METHOD." FERRO-FAN FOR SURFACE HARDENING CONCRETE FLOORS. See Fig. 4, page 40. To prevent the absolute dusting of concrete floors and to provide a surface capable of resisting traffic of all kinds. The introduction of FERRO FAN into the upper surfaces of concrete floors will be found effective. The user must bear in mind that directions are to be carefully followed to attain perfect results.

CONTINUED ON NEXT PAGE

COVERING CAPACITIES

Dehydratine No. 1, 80 to 130 sq. ft. per gal., 1 coat.
Dehydratine No. 1, 100 to 160 sq. ft. per gal., 2 coat
Dehydratine No. 2, 120 to 180 sq. ft. per gal., 1 coat
Dehydratine No. 2, 150 to 210 sq. ft. per gal., 2 coat
Dehydratine No. 3, 95 to 140 sq. ft. per gal., 1 coat
Dehydratine No. 3, 115 to 160 sq. ft. per gal., 2 coat
Dehydratine No. 4, 50 to 90 sq. ft. per gal., 1 coat
Dehydratine No. 4, 65 to 110 sq. ft. per gal., 2 coat
Dehydratine No. 5, 300 to 450 sq. ft. per gal., 1 coat.
Dehydratine No. 6, 30 sq. ft. per gal., 1 16 in. thickness
Dehydratine No. 6, 45 sq. ft. per gal., 1 24 in. thickness.
Dehydratine No. 6, 60 sq. ft. per gal., 1 32 in. thickness
Rust Bar, 300 to 450 sq. ft. per gal., 1 coat
Symentrex, 150 to 250 sq. ft. per gal., 1 coat
Symentrex, 200 to 350 sq. ft. per gal., 2 coat
Symentrin, 500 to 700 sq. ft. per gal., 1 coat
Kourrex Floor Filler, 150 to 250 sq. ft. per gal., 1 coat
A. W. P., 300 to 300 sq. ft. per gal., 1 coat

REFERENCES.

Bank of Montreal, Winnipeg
Winnipeg General Hospital
Dominion Bank, Calgary
Provincial Jail, Winnipeg
Canadian Locomotive Works Tunnel, Kingston
Strathy Residence, Toronto
Tiffany Building, New York
St. Thomas Church, New York
Hotel Belmont, New York
Hotel Plaza, New York
U. S. Senate Office Building, Washington, D.C.
Dominion Bank Building, Toronto
Ryrie Building, Toronto

McKim, Mead & White, Architects, New York
J. D. Atchison, Architect, Winnipeg
V. W. Horwood, Architect, Winnipeg
V. W. Horwood, Architect, Winnipeg
H. Gabhmark, Engineer.
Eustace G. Bird, Architect, Toronto
McKim, Mead & White, Architects, New York
Cram, Goodhue & Ferguson, New York
Warren & Wetmore, Architects
H. J. Harkenbergh, Architect
Carrere & Hastings, Architects
Darling & Pearson, Architects.
Burke Horwood & White, Architects.

SUPER-STRUCTURE SECTIONS.

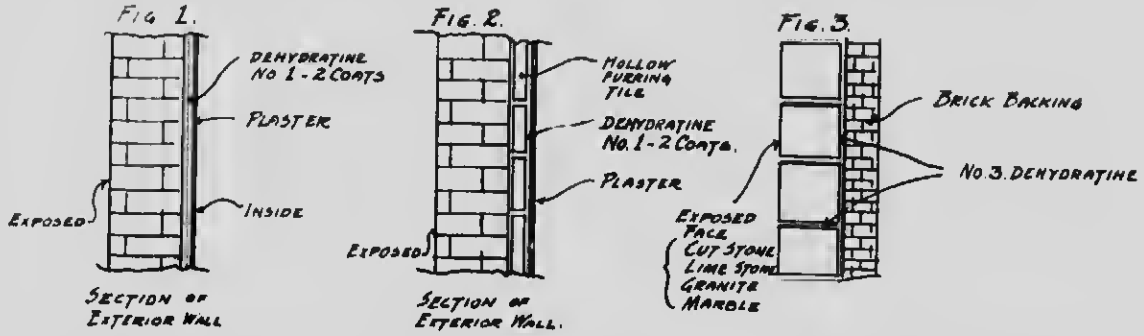


Fig. No. 1 represents section with furring omitted, plastering being done directly upon the damp-proofing, while in Fig. No. 2, where Hollow Tile is employed, the use of No. 1 DEHYDRATINE between it and the plaster prevents staining of the latter.

The exudation of lime salts (efflorescence) can be prevented by painting five sides of the stone with 2 coats No. 3 DEHYDRATINE to within ¼ inch of the exposed face.

NOTE.—Where efflorescence already exists, the only remedy lies in washing down surface with weak solution of muriatic acid, followed by clean water, then thoroughly treating such surface with No. 2 DEHYDRATINE (colourless).

"THE FERROLITHIC METHOD"

FIG. 4.

TREATMENT OF CONCRETE FLOORS TO PREVENT DUSTING.

MacLaren Hotel, Winnipeg.
Hydratite used on Foundation

To provide concrete floors with an absolute non-dusting, non-abrasive surface to resist traffic.

(1) Concrete under bed made up in a mixture 1-3-5 (stone, limestone or granite, ½-inch mesh) to be well rammed with upper surface left rough to receive.

(2) Top body consisting of 1 cement, 1 sand, 1 grit, with 12% FERRO-FAX by weight of cement.

(3) Equal parts of FERRO-FAX and cement mixed, dusted on top body while latter is still wet and then trowelled to hard smooth finish with a steel trowel.

NOTE.—All sand to be clean, sharp and well screened.

GRIT. Crushed granite or stone 1-16 inch mesh. Surface to be kept wet for period of 3 days after treatment. Floor will not attain maximum hardness under 30 days.

Canadian Bank of Commerce, Winnipeg.
Dehydratine Nos. 1, 3 and 4 used.

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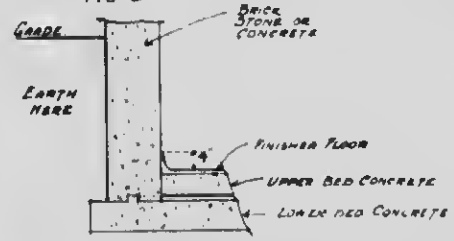
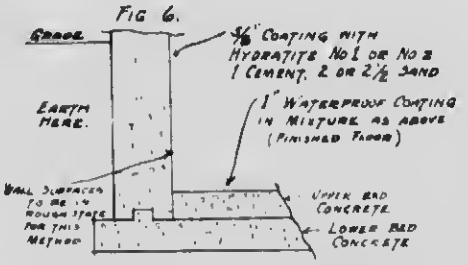
Sub Structural Sections.

Fig 5



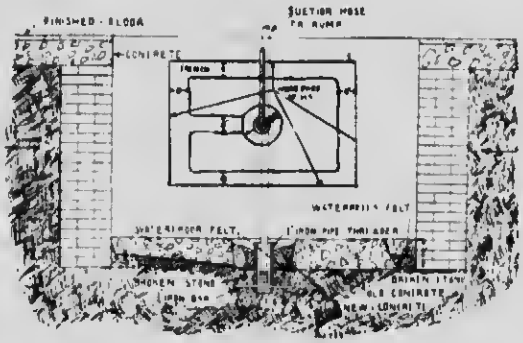
Membranous (seal) method. Either No. 4 Dehydratine, No. 6 Dehydratine, Dehydratine Mastixement and Minerva Felt, depending upon hydrostatic conditions.

Fig 6.



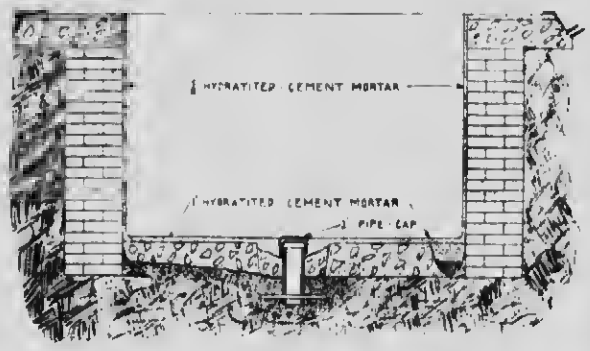
Integral method applied as a plaster coating as above (Fig 5) or mixed throughout the concrete

Fig. 7.



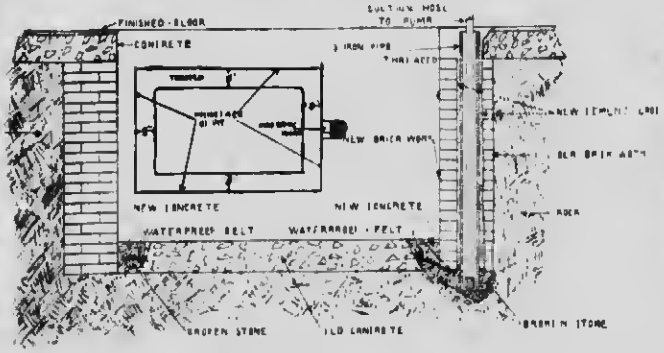
Showing method of caring for water during water-proofing.

Fig. 7A.



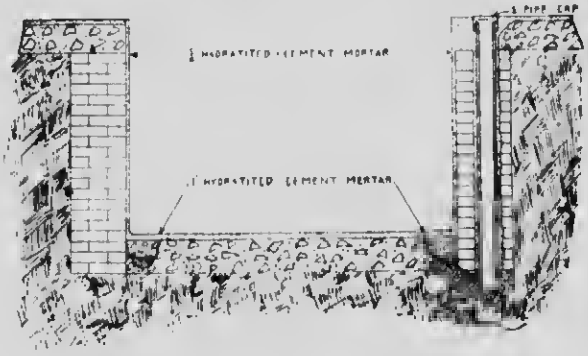
Showing completed section water-proofed with Hydratitol Cement.

Fig. 8.



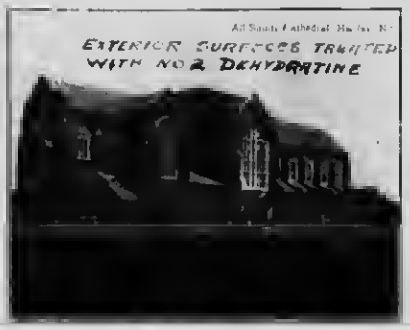
Showing preliminary step in water-proofing—Pump installation at side

Fig. 8A.



Showing completed section water-proofed with Hydratitol Cement.

Union Station, Winnipeg
Dehydratine No. 4 and Hydratite. Symentrex on Dome.



All Saints Cathedral, Halifax.
Dehydratine No. – used

CERESIT WATERPROOFING COMPANY

GENERAL OFFICES:

WESTMINSTER BUILDING,

CHICAGO, ILLINOIS.

CANADIAN BRANCHES

DOUGLAS MILLIGAN, LTD., 104 University Street, Montreal
W. K. McDONALD CO., Crown Office Bldg., Toronto
WALKERS LTD., 250 Stanley Street, Winnipeg
E. G. CULLEN, 124 Drake St., Vancouver, B.C.
DE B. CARRITTE, St. John, N.B.
DE B. CARRITTE, Halifax, N.S.

Factories in Chicago, Uma, Westphalia, Germany, London, Paris, Vienna, Warsaw

PRODUCTS. "CERESIT."

CERESIT

WATERPROOFING COMPOUND.

USES. Ceresit is a perfect means of waterproofing cement in any form and under any circumstances.

ADVANTAGES. 1. *Moisture Proof.* Ceresit renders concrete, cement, mortar, or cement stucco absolutely and permanently moisture proof.

2. *Pressure Proof.* Tests made under pressure up to 500 pounds to the square inch—far greater than is ever met in actual use—did not show a drop of seepage through Ceresitized concrete.

3. *Frost, Alkaline and Sea Water Disintegration Proof.* Destructive powers of frost, sea water and alkaline water, are overcome by Ceresit. Frost loses its effect because no free water can enter the structure. Again, Ceresit guards against the action of alkaline water, because it completely repels the water which would have to carry the destructive elements into the structure.

4. *Extends Through Entire Structure.* Ceresit permeates every part of the mass uniformly. Chipping of the surface cannot affect its water-proofing quality.

5. *Does Not Impair Original Strength.* Many tests, made under every possible condition by scientific men, failed to show that Ceresit affects the strength of concrete in any way.

6. *Has No Odour.* Ceresit has no odour of its own. Naturally, it leaves none. In fact, it keeps foul elements out.

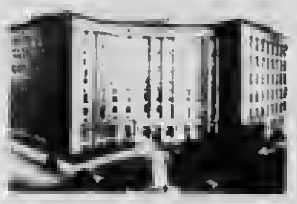
7. *Does Not Discolour.* Ceresit not only does not discolour but it has a slightly bleaching effect.

8. *Easily Mixed.* Ceresit requires neither expert labour nor extra labour to get the correct results.

MONROE BUILDING, CHICAGO, CORNER MONROE STREET AND MICHIGAN BOULEVARD.

Foundations of this big Chicago sky-scraper, right on the lake front, that furnish perfect support for 5 stories, built of reinforced concrete and waterproofed with Ceresit.

The basements are about 20 feet below street level.



MICHAEL REESE HOSPITAL, CHICAGO.

Tunnel connecting Annex, within one hundred feet of lake front, waterproofed with Ceresit.

NORTHERN ILLINOIS STATE NORMAL SCHOOL, DE KALB.

Here was presented another problem of waterproofing that was solved by Ceresit.

GRAND HOTEL, GARDONE.

Problem one of continuous pressure.

NEW TIMES BUILDING, LOS ANGELES, CAL.

10,000 pounds of Ceresit used

CONTINUED ON NEXT PAGE

CERESIT WATERPROOFING COMPANY

GENERAL OFFICES:

WESTMINSTER BUILDING,

CHICAGO, ILLINOIS.

CANADIAN BRANCHES

DOUGLAS MILLIGAN, LTD., 304 University Street, Montreal
W. K. McDONALD CO., Crown Office Bldg., Toronto.
WALKERS LTD., 259 Stanley Street, Winnipeg
E. G. CLARKE, 324 Drake St., Vancouver, B.C.
DE B. CARRITTE, St. John, N.B.
DE B. CARRITTE, Halifax, N.S.

Factories in Chicago, Erna, Westphalia, Germany
London, Paris, Vienna, Warsaw

METHODS OF USE.

Mix one part of Ceresit with an equal part of water, stir until thoroughly dissolved. Then add further 11 to 19 parts of water, making the total proportion one (1) part of Ceresit to from twelve (12) to twenty (20) parts of water, according to the water pressure.

Ceresit weighs practically the same as water, and can be measured either by weight or volume.

PACKING AND SIZES.

Ceresit waterproofing is put up in five and ten gallon jacketed cans and in barrels, and may be obtained from us or from our authorized agents in principal cities.

LITERATURE AND PRICES

1914 Ceresit Catalogue the "Book of Evidence," which will be off the press on April 1st is distinctive, novel, and original. One book is built over another. A Judge sits above all. Records of 5 "Witnesses" are told separately in the unique books. Tell us what kind of construction you are interested in, and we will estimate the necessary quantity. Send for our price lists.

TEST REPORTS.

Our catalogue contains authoritative and complete reports of technical tests made of Ceresit by American and European Engineers. Robert W. Hunt & Co., Engineers, and the Imperial Bureau of Testing Materials, Berlin, Grosserlichterfelde, present such reports, showing proof of the great merit of Ceresit.

A TESTIMONIAL.

Nashville, Tenn., June 14, 1913

Ceresit Waterproofing Company,
Chicago, Illinois.

Gentlemen,—Replying to yours of October 10th, we beg to say that we have used CERESIT in concrete floors and cement plastering of walls of a deep basement of Messrs. Lever Bros. Soap Works, Toronto, and also in connection with a small piece of work for the Bank of Commerce at Kingston, Ont., and we found it quite satisfactory.

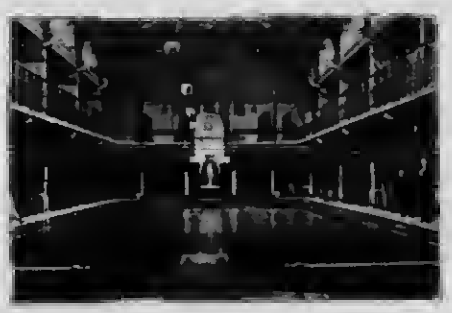
T. CANNON & SON, LTD.

WATER TOWER,
SAN ACACIO, COLORADO

Builders sought to make this reinforced concrete tower 134 feet high absolutely water proof. This was a big problem. Perfect results were obtained by the use of Ceresit in the mass.

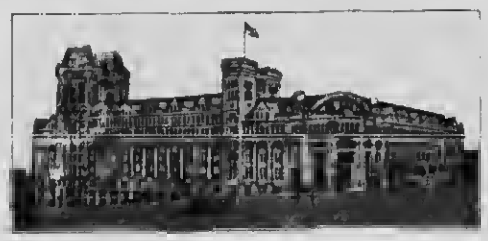
ROYAL SOCIETY OF MEDICINE, LONDON, W.

Basement of this structure was made absolutely and permanently water and dampproof by Ceresit.



SWIMMING POOL,
GRETRY, LIEGE.

To render this swimming pool water-tight, a Ceresitized cement mortar coating was applied on the inside walls.



WINDSOR STATION, MONTREAL, QUEBEC.

The problem was to waterproof a large reinforced concrete tunnel.

THE STEEL FLOOR SLEEPER ANCHOR CO.

AGENCIES
JOHN H. ALEXANDER,
703 ROBLIN'S EXCHANGE, WINNIPEG, MAN.
WM. W. CUNEO CO., LTD.
VANCOUVER, B.C.

TORONTO

AGENCIES
GORMAN, CLANCEY & GUNDRUM, LIMITED
CALGARY, ALTA.
WALKER & BANKS
EDMONTON, ALTA.

PRODUCT — GRIP TIGHT FLOOR SLEEPER ANCHOR — A new method of anchoring Wood Sleepers to Concrete

GRIP TIGHT Floor Sleeper Anchor
Patented United States, Canada and Great Britain

GENERAL.

It has been admitted by those who know that the method usually employed to fasten wood sleepers to concrete by the installation of cinder filling for various reasons has not been satisfactory.

The object in using the new anchor is to fasten the wood sleepers to the concrete independent of the filler if necessary. Where an air space is required, this method is exceptionally valuable.

The use of concrete filler to hold the sleepers in place is not only expensive, but is unnecessary with the new method.

The new method will prevent loose sleepers, caused by the shrinkage of wood and concrete, and consequently give you a solid wood floor without movement.

The usual practice followed in fastening wood sleepers for the reception of the floor is to lay the sleepers and fill in between just prior to the installation of the interior finish. This introduces into the building tons of moisture to be absorbed by the drier parts, and more especially by the kiln dried interior finish and floors, usually with disastrous results.

Why not avoid this risk by using the anchor?

Again, the expense incurred by waiting for the building to dry out is an item to be considered, as it represents the interest on a large investment tied up. For this reason alone we believe the anchor should appeal to you.

FIVE REASONS WHY YOU SHOULD USE THE ANCHOR.

1st. Secure anchorage without movement caused by shrinkage.
2nd. Save the cost of cinder filler and lighten the floors.
3rd Save expense levelling the sleepers.
4th. Save time laying and levelling.
5th. Secure a valuable air space where it is required.

If it is necessary to use a filler, why not a dry one?

The anchor strip is 2 inches wide and made of iron heavily coated with waterproof paint. It is punched 12, 16 and 24 inch centres and, as you will see by the illustration, is a self spacer, providing you start by laying the ends of the strips to a straight line. This can be done by placing the ends against the wall, if it is straight, or by running a straight line across one side of the building against the wall.

The strips can be placed any distance apart for anchoring the sleepers, the prongs always appearing through the concrete in perfect alignment.

After a section of concrete has been laid, the strip is cut to the desired length and puddled in from one to one and one-half inches, as you so desire, which is the work of only a few minutes, the same being repeated as the fresh batches of concrete are laid. No special care is required in doing this, as it is immaterial as to whether the strip runs perfectly level in the concrete.

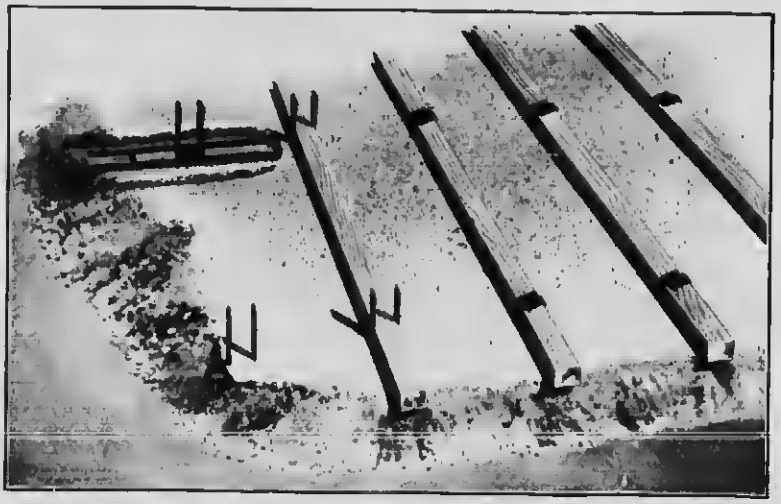
When the concrete is dry enough to walk on, the prongs which protrude can be bent over with the foot on the face of the concrete until such time as you are ready to lay the sleepers, when they can be turned up and fastened. When the prongs are nailed over the sleepers, a good knock with the hammer is sufficient to keep them from interfering with the laying of the floor. Below we give you a specification for laying the sleepers:

SPECIFICATION.

The contractor for the carpenter work will work in unison with the contractor for the concrete work and place in the concrete the metal strip for anchoring the wood sleepers. This will be done as the batches are being levelled up by placing the strip in the concrete and tapping it gently down one to one and one half inches, care being taken to place the ends of the strips in a straight line to insure perfect alignment of the prongs.

When the concrete is sufficiently dry to walk on this contractor will bend over the prongs to keep them from interfering with traffic. When the wood sleepers are to be laid, this contractor will turn up the prongs and fasten them securely, any space between the sleeper and the concrete to be pointed with cement mortar. All sleepers must be laid true from end to end and rubbed in.

NOTE: Please note that the sleepers can be laid more readily by this method, as the warping of the material can be taken out of each piece as it is laid, avoiding the necessity of tying them together with strips and using weights to hold them straight until the filler is poured and set.



This method of anchoring can be successfully used in connection with cement slab roofs for the reception of slate or copper.

In presenting this scheme, which has been patented in the United States, Canada and Great Britain, we feel that we have been able to improve conditions somewhat in this connection, and we would feel greatly encouraged to have you specify our production.

INFORMATION. For further particulars address Head Office, Toronto.

SUN BRICK CO., LIMITED

MANUFACTURERS OF "SUNTEX" PRODUCTS AND DENISON INTERLOCKING TILE.

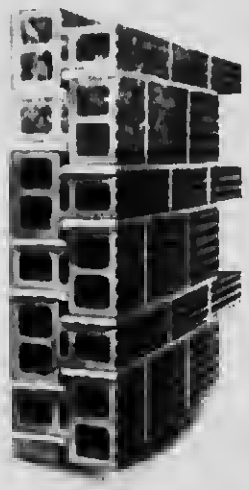
TRADERS BANK BUILDING,

TORONTO, ONT.

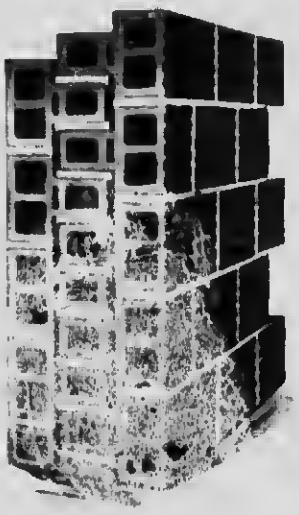
PRODUCT

DENISON INTERLOCKING TILE is used for Bearing Walls instead of Common Brick. It is manufactured from Shale, burned to semi-vitrification. Deeply scored or grooved, a key is formed to hold plaster, it being splendidly adapted for stucco buildings or for backing facing materials. No furring is required. One shape and size builds all desirable thicknesses of walls. No matter what thickness of wall you build with Denison Tile, every vertical web stands directly over a vertical web below. The wonderful stability of the Denison Tile Wall is due to the four inch mortar beds and its interlocking system. No mortar joints extend through the wall to carry moisture. This feature, together with the many dead air spaces, renders the Denison Tile Wall impervious to moisture, heat, cold, sound, etc. The weight of the wall and laying up cost is only about one half that of solid brick walls.

Careful comparison between the Denison and other tiles convinces that no other tile equals these important features.



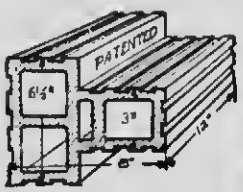
Eight inch Wall

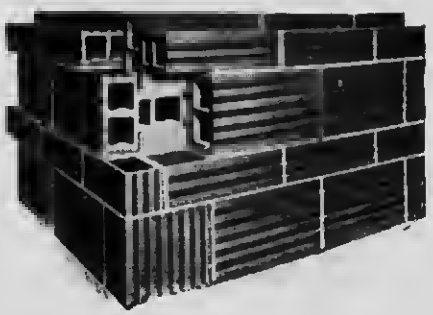


Twelve inch Wall

Wall of Denison Tile Faced with Pressed or Common Brick

Application of Jamb Tiles, Corners and Lintel





Bonding to wall at Corner. Corner Tile omitted in Upper Part to show manner of Bonding.

It is the Vertical Webs that must carry the Loads. To get their full strength they must stand over each other. (Notice the rule.)

ORDERING. In ordering jamb and corner tile, give total linear feet (vertical) of jambs and corners. Weight of wall, inclusive of mortar, 60 pounds per cubic foot. To figure number of tile required, 2 tiles, lay one square foot (face of wall measure) of 8-inch wall; 3 tiles, lay one square foot of 12-inch wall.

INFORMATION. Architects and builders desiring further information concerning Denison Tile, prices, catalogues, etc., will confer a favour by forwarding their inquiries to us.

See our Brick display on page 11.

THE DON VALLEY BRICK WORKS

HEAD OFFICE, 36 TORONTO STREET,
TORONTO, ONT.

MONTREAL AGENT.
DAVID McGILL,
83 BLEURY STREET.

WORKS.
DON VALLEY, TORONTO.

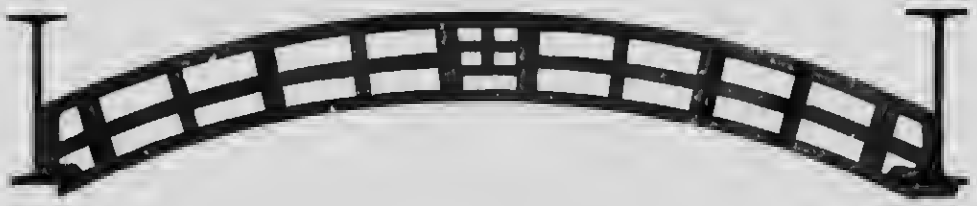
PRODUCTS. We manufacture the "DON VALLEY" POROUS TERRA COTTA FIREPROOFING for Floors, Roofs, Ceilings, Partitions, Wall Furring, Column and Girder Coverings. Our extensive clay beds are suitable in quality and our facilities are unequalled for producing a high-grade Hollow Tile.

FLAT ARCHES.

Perspective of Typical Arch.

SIDE CONSTRUCTION. This, the oldest method, has the advantage of the blocks being set so as to break joints, and the flat sides of the blocks gives ample surface for making good mortar joints between them.

SEGMENTAL ARCHES.

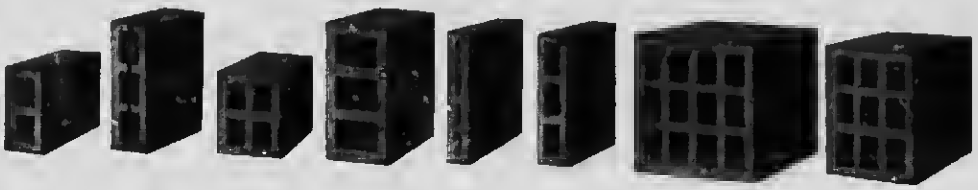


Section Showing Style of Skewbacks and Keys.

This form of arch combines great strength with lightness and cheapness. It is suitable for Warehouse Lofts, Factories, Sidewalks, or wherever a flat ceiling is not essential.

Weight of 6" Hollow Tile Arch, 27 pounds per square foot.

TERRA COTTA FOR WALLS AND PARTITIONS.

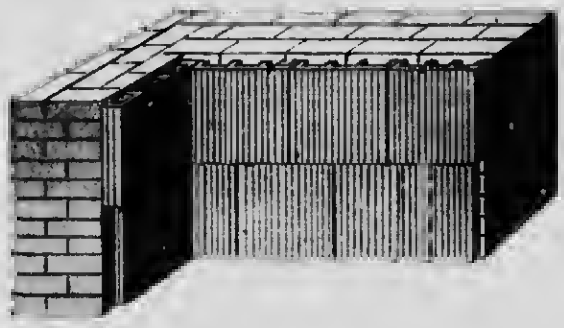


4 X 8 X 12 | 4 X 12 X 12 (Split) | 6 X 8 X 12 | 6 X 12 X 12 | 2 X 12 X 12 | 3 X 12 X 12 | 12 X 12 X 12 | 9 X 12 X 12

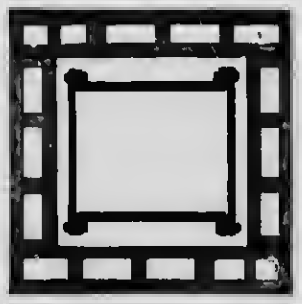
The above cuts represent shapes and sizes of our Porous Terra Cotta for Walls and Partitions.

CONTINUED ON NEXT PAGE

WALL FURRING.



1½ x 12 x 12, weight per square foot, 8 pounds.
2 x 12 x 12, weight per square foot, 9 pounds.

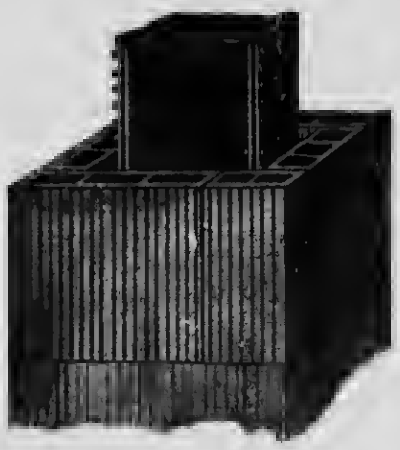


Type of Column Covering

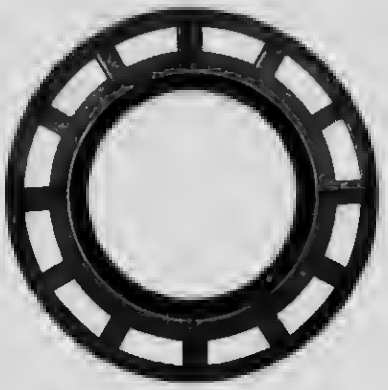
Walls are furred to prevent the admission of moisture either by lining the inside with Terra Cotta Furring Blocks, or by building the inside face of the wall with hollow bricks.

The former method is the more effective and takes less room. We carry large stocks of each.

COLUMN COVERINGS.



Perspective of Column Fireproofing.



Type of Column Covering

Steel and cast-iron columns must be covered with at least two inches of Porous Terra Cotta. We manufacture and carry in stock a variety of column coverings.

TOUGHER AND WELL BURNED. Our Terra Cotta is tougher than other makes, thoroughly burned, and is stronger and better for the fireproofing of columns and girders and has less waste than other makes.

PROMPT DELIVERY. We guarantee prompt delivery, furnishing at the same time goods of the very highest quality.

See also our advertisement on pages 6 and 7.

NATIONAL FIRE PROOFING COMPANY OF CANADA, LIMITED

OFFICE TRADERS BANK BUILDING,
TORONTO, ONTARIO.

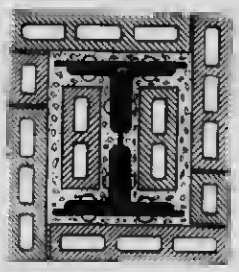
MONTREAL, CANADIAN BANK OF COMMERCE BUILDING, COR. ST. CATHERINE AND CRESCENT STS.

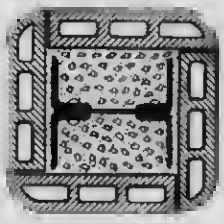
PRODUCTS. Manufacturers of DENSE, SEMI-POROUS and POROUS HOLLOW TILE for FIREPROOF FLOORS, ROOFS, CEILINGS, PARTITIONS, WALL FURRING, COLUMN and GIRDER COVERINGS and EXTERIOR WALLS. Contractors for FIREPROOF CONSTRUCTION in both HOLLOW TILE and REINFORCED CONCRETE.

ADVANTAGES. The National Fire Proofing Company of Canada, Limited, applies the benefits of the entire experience of the National Fire Proofing Company of Pittsburgh, U.S.A., covering a period since 1889, up to the present time. This experience has involved practically every system of successful fireproofing that has resulted from engineering and architectural development.

FLAT ARCHES END CONSTRUCTION. The Flat Arch is the accepted type of Standard Fireproof Floor Construction, meeting every requirement as to strength, fire protection, architectural appearance and minimum weight.

Perspective of Typical Arch



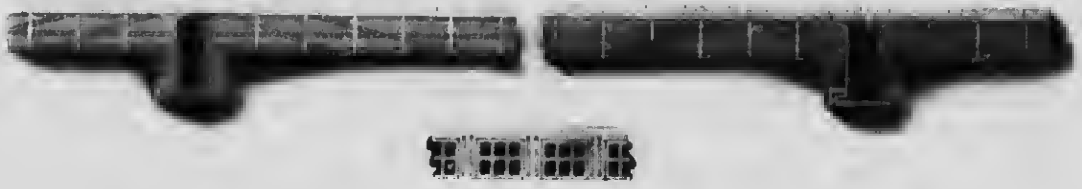


COMBINATION HOLLOW TILE AND REINFORCED CONCRETE FLOOR CONSTRUCTION. This floor has been used successfully and to economical advantage in many large modern buildings. As shown by the detailed drawing, the centering for this floor is very simple, a solid centering not being necessary. This, of course, is a great factor in reducing the cost of construction.

It will be seen that the tile is first laid on the centering, and after the courses of tile are in place the reinforced concrete joists are cast between the tile courses.

The courses of tile act in compression together with the reinforced concrete rib and also act as a side centering to hold the concrete in place until it has set.

If an additional top coating of concrete is necessary to give the floor requisite strength to carry the load for which it is designed, this top coat is then spread over the entire floor surface to the depth required.

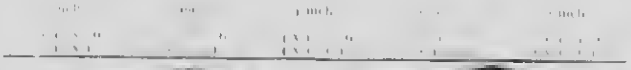


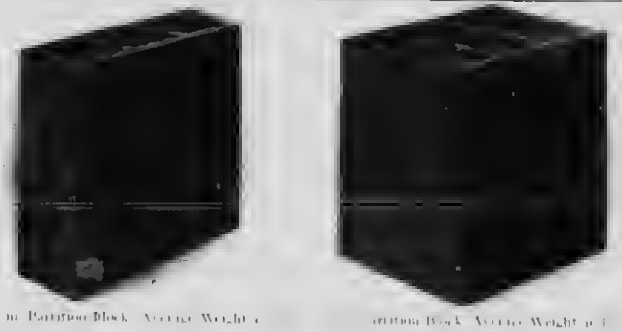
DETAIL OF TYPICAL LONG SPAN COMBINATION HOLLOW TILE AND REINFORCED CONCRETE FLOOR CARRIED ON STEEL BEAMS.

Combination Tile and Concrete Floor System can be used with either reinforced concrete or steel columns and girders.

PARTITIONS. Terra cotta blocks form also lately the best fireproof partitions now known, and can be erected at a very reasonable cost. They are commonly built of dense or semi-porous material. 3 inch blocks can be used safely to a height of 12 feet, 4 inch to 14 feet, and 6 inch to 20 feet.

STOCK SIZES





4 in. Partition Block. Average Weight [illegible]

6 in. Partition Block. Average Weight [illegible]

CONTINUED ON NEXT PAGE

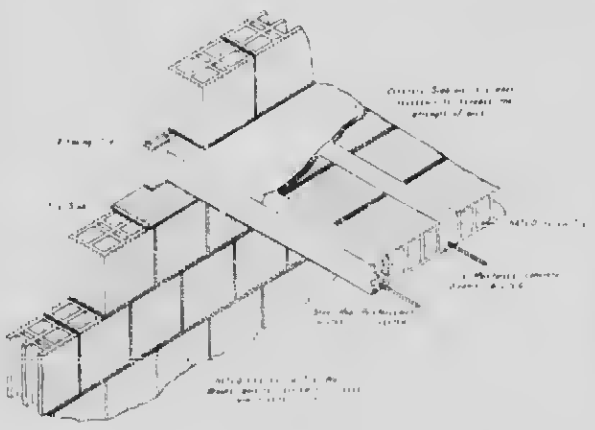
HOUSES OF NATCO HOLLOW TILE

The value and economy of Natco Hollow Tile for structural as well as for fireproofing purposes is now fully recognized, and residence buildings are being built of this material in great numbers, with extremely satisfactory results to owners and architects.

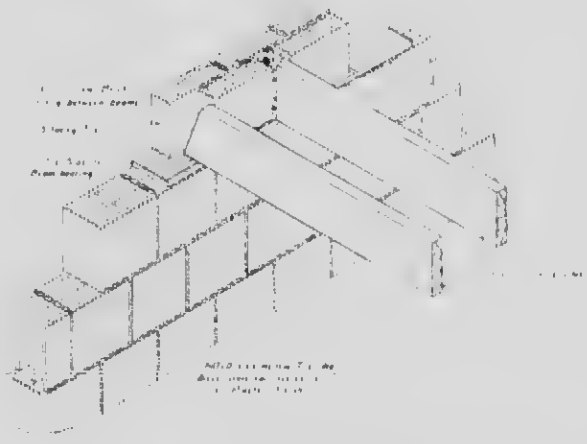
The following illustrations give examples and methods of this construction, but for complete data every architect should have a copy of our book on "Natco Houses," which we shall be pleased to furnish free upon request.

It should be borne in mind that there is a vast difference in clays, as to strength, density and non staining qualities, and in order to be sure of obtaining material manufactured by us, architects should specify

NATCO HOLLOW TILE.



Detail of Wall Construction with Fireproof Floor.



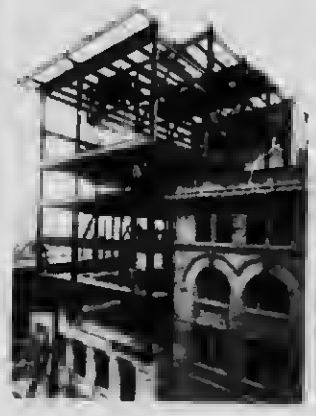
Detail of Wall Construction with Wood Floor.

DOMINION FIRE PROOFING CO., LIMITED

503 Confederation Life Building

WINNIPEG, MAN.

PRODUCTS. Specialists in TERRA-COTTA HOLLOW TILE FIREPROOF CONSTRUCTION.



GRAIN EXCHANGE, Ext
Jordan & Over, Architects

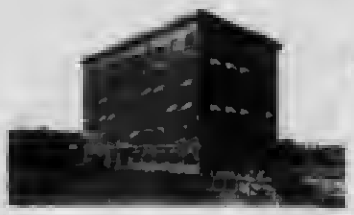
WINNIPEG ELECTRIC BUILDING
Pratt & Ross, Architects

G. W. P. L. BUILDING
J. H. G. Russell, Architect

McCALLUM & HILL BUILDING, REGINA
Storey & Van Egmond, Architects

ILLUSTRATIONS. These buildings were fireproofed with TERRA COTTA HOLLOW TILE because of:

Rapidity of Installation
Fireproofing Qualities.
Safety of Construction
Light Dead Loads.
Sound-proof Valve.
Insulation to Extreme Temperatures
Adaptability to Alterations
Convenience to Other Trades.
Minimum Insurance Rate.
Result: A net saving of Time, Risk, and Cost to the Owners.



CIVIC BUILDING, EDMONTON
A. M. Jeffers, Architect

CANADA BUILDING, SASKATOON
Jas. Chisholm & Son, Architects

ROYAL ALEXANDRA HOTEL, EDMONTON
Worthington, Gilbert & Kerr, Engineers

MERCHANTS BANK BUILDING
C. O. Wilson, Architect

HUDSON'S BAY STORE, CALGARY
Burke, Horwood & White, Architects

CATALOGUE. Illustrated Catalogue mailed upon request

THE DOMINION BRIDGE CO., LIMITED

HEAD OFFICE, LACHINE, QUE.

P.O. ADDRESS: MONTREAL, QUE.

BRANCH OFFICES:
TORONTO—GEORGE E. EVANS, Manager.
WINNIPEG—GEORGE E. BELL, Manager.
OTTAWA—W. A. MATTICE, Manager.

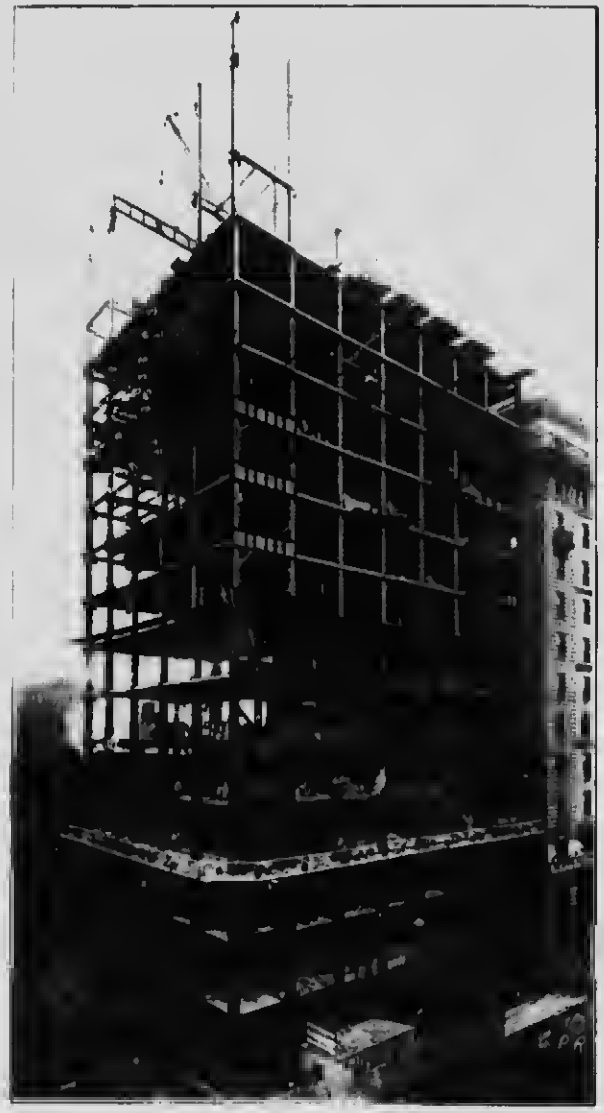
SHOPS AT
LACHINE, P.Q.
TORONTO, ONTARIO.
OTTAWA, ONTARIO.
WINNIPEG, MAN.

PRODUCTS. We are designers and builders of RAILWAY and HIGHWAY BRIDGES, SWING and BASCULE SPANS, and all kinds of STRUCTURAL STEEL WORK, including COLUMNS, GIRDERS, ROOF TRUSSES, TANK TRESTLES, ELECTRIC CRANES, LOCOMOTIVE TURNTABLES, HOISTING APPLIANCES, LIFT LOCKS, HYDRAULIC REGULATING GATES, Etc., Etc.

STOCK. We have always in stock at Lachine, Toronto, Ottawa and Winnipeg, a large supply of steel beams, channels, angles, tees, plates, etc

FACILITIES. Our shops at Lachine, Toronto, Ottawa and Winnipeg are equipped with the most modern tools, and we are consequently in a position to manufacture and ship structural steel work of every description with the least possible delay.

Our total annual capacity amounts to 100,000 tons



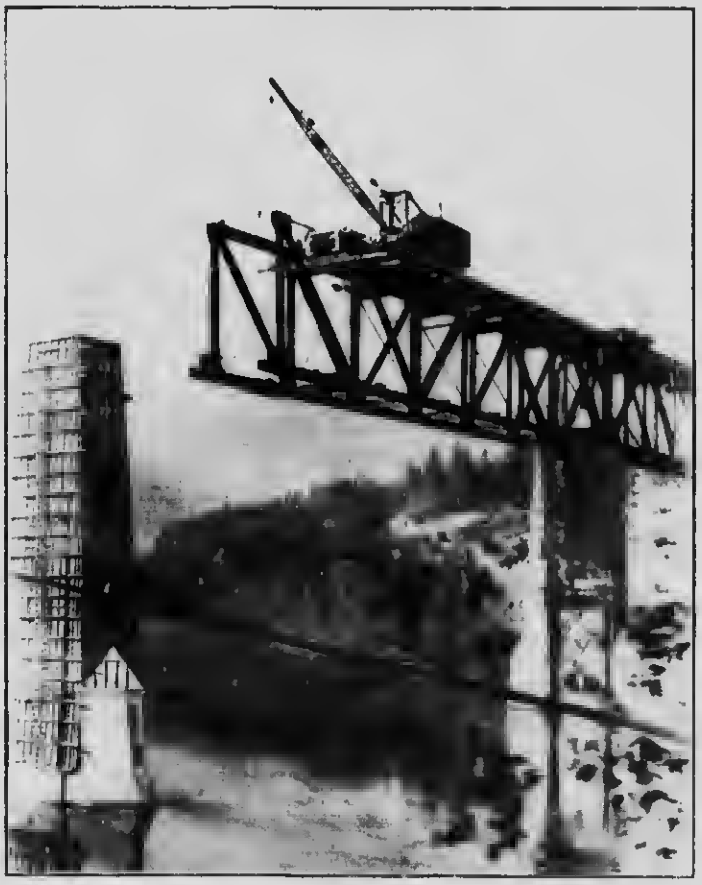
C.P.R. Office Building, Toronto
Darling & Pearson, Architects — [illegible] Tons of Structural Steel

THE CANADIAN BRIDGE COMPANY, LIMITED

WALKERVILLE, ONTARIO.

PRODUCTS. STEEL RAILWAY BRIDGES, STEEL HIGHWAY BRIDGES, LOCOMOTIVE TURNTABLES, OFFICE BUILDINGS, and GALVANIZED or PAINTED ELECTRIC TRANSMISSION TOWERS.

CAPACITY. 40,000 tons per annum.



THE SKEENA RIVER BRIDGE, BRITISH COLUMBIA, GRAND TRUNK PACIFIC RAILWAY. THREE 400 FT. SPANS AND THREE 700 FT. SPANS. THE FORMER ERECTED BY CANTILEVER METHOD FROM EACH END.

DESIGNS AND ESTIMATES. Architects and engineers are respectfully requested to accompany their inquiries with plans, specifications and full data

EASTERN CANADA STEEL & IRON WORKS, LIMITED

MONTREAL OFFICE:
CORISTINE BUILDING.

HEAD OFFICE AND WORKS
QUEBEC, P.Q.

SERVICES. STRUCTURAL STEEL ENGINEERS, MANUFACTURERS, CONTRACTORS.

FACILITIES. Completely equipped modern plant for fabricating and erecting structural steel work for buildings, manufacturing plants, highway bridges, railroad bridges, viaducts, etc., located on the main line of the C.P.R. Annual capacity, 14,000 tons. Stock of 5,000 tons of plates and shapes constantly on hand. Prompt deliveries a specialty.

HIGHWAY BRIDGE C.P.R. 40 ARTHABASKA COUNTY QUEBEC
3 CL. SPANS. FABRICATED AND ERECTED BY EASTERN CANADA STEEL & IRON WORKS, LIMITED

WORK EXECUTED. A number of other large bridges have been fabricated and erected. The following is a list of some of the buildings, steel work for which was fabricated and erected by the Eastern Canada Steel & Iron Works, Limited:

Quebec Railway L. H. & P. Building, Quebec.
Parliament Library Building, Quebec.
Forestry Building, Laval University, Quebec.
New Customs House, Quebec.
Chicoutimi Seminary.
Art Museum Building, Montreal.
Temple Baptist Church, Montreal.

THE MANITOBA BRIDGE AND IRON WORKS, LIMITED

WINNIPEG, MAN.

REPRESENTATIVES AT

CALGARY, EDMONTON, LETHBRIDGE, SASKATOON, REGINA,
AND ALL OTHER PRINCIPAL POINTS IN WESTERN CANADA.

PRODUCTS. We are Designers and Builders of all kinds of STRUCTURAL STEEL WORK, GIRDERS, ROOF TRUSSES, COLUMNS, TRESTLES and HIGHWAY BRIDGES, FIXED and LIFT SPANS, TANK and PLATE WORK, CAST IRON COLUMNS, BASES, etc. TRANSMISSION MACHINERY and ELEVATOR EQUIPMENT.

INTERIOR OF OUR NEW FOUNDRY. CAPACITY, 25 TO 30 TONS DAILY

OUR PLANT. Six completely equipped departments. Bridge and Structural Shop, Plate and Tank Shop, Foundry, Forge Shop, Machine Shop, Ornamental and Pattern Shop.

Annual capacity of structural steel and cast iron, 30,000 tons.

CANADIAN ALLIS-CHALMERS, LIMITED

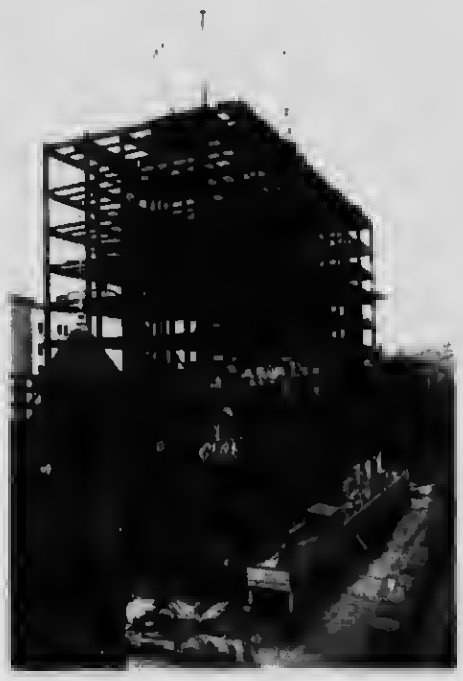
(Formerly Canada Foundry Co., Limited)

BRIDGE DEPARTMENT,
TORONTO, CANADA.

A NEW RECORD
FOR THE ERECTION OF STRUCTURAL STEEL

PRODUCTS. Our Bridge and Structural Department is now in a position, with our own Staff and Shops, to Design, Estimate, Fabricate, and Ship and Erect promptly OFFICE and MILL BUILDINGS, BRIDGES, PENSTOCKS, GALVANIZED TRANSMISSION TOWERS, Etc.

Among other notable buildings and bridges erected in 1913 is the Dominion Bank, noted below, a detailed description of which will be sent on request without charge.



NEW DOMINION BANK,
TORONTO

Darling & Pearson Arch.

Steel Work Furnished and Erected by Canada Foundry Co., Bridge Dept.

First Columns erected Aug. 22nd. Last Steel erected, including Riveting, Painting and Removal of Derricks, etc., Nov. 10th, 1913.

[illegible]

Nov. 10th, 1913.—Dove Lyons

[illegible]

CAPACITY. Our Bridge Shops at Toronto and Bridgeburg, Ont., have increased capacity for quick deliveries.

8,000 tons Structural Steel in stock

Send us your enquiries for any class of steelwork for Bridges and Buildings.

THE ROOFERS' SUPPLY CO., LIMITED

BAY AND LAKE STREETS,

TORONTO, ONT.

PRODUCTS. We are manufacturers of and dealers in SHEET METALS, ROOFING MATERIALS, ROOFERS' SUPPLIES, WIRED GLASS, Etc

FELT AND GRAVEL ROOFS. The flat or deck style of roof is conceded to be the most economical for warehouses, factories, office buildings, etc. The slope of roof should be ¼ inch to ½ inch per foot. Where hanging gutters are to be used, have the cornice project at least 10 inches over wall, have the facia board come up to roof and go below the soffit, never have roof boards project past facia, put a 6 inch strip of galvanized iron along eave, turned down 3 inches into gutter, then start your Felt Roofing by sticking the first ply to the edge of roof and over the galvanized iron, projecting the felt over 1 inch to 2 inches to carry water into gutter. Around sky lights, chimneys, brick walls, etc., turn felt up and stick with pitch, nailing a lath along top of felt, about 3 inches up from roof. If Metal Cloak Flashing is to be used, the lathing is not necessary. Never allow any nailing or flashing, etc., to come within 3 inches of roof. The most successful way to construct flat roofs is to have the water brought down inside the building, grade the roof to one or more points according to size of building, have hoppers about 16 inches across mouth, run down into 4 inch wrought or cast iron pipe, put wire guard over hopper to prevent gravel, etc., getting in. The trouble with ice along eaves and in gutters is done away with, but this style is not suitable unless the building is sufficiently heated to prevent frost reaching the down pipes during winter. We offer for guidance two specifications, but recommend No. 1 for all first class buildings.

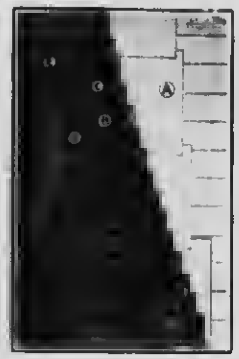
These roofs resist fire three times as long as iron or tin.

Felt to be "*R. S. Brand*" medium weight Tarred Felt.

Pitch to be "*R. S. Brand*" Roofing Pitch.

A. Dry Felt or Sheathing. B. Tarred Felt, each ply shows 15 in. exposed. C. Flowing Coat of Pitch. D. Pitch between Sheets. E. Gravel.

Specification No. 1. Lay one ply of dry felt or sheathing, over this two plies of tarred felt, medium weight, swabbed between each sheet with hot pitch, then swab the whole surface with a good coat of boiling pitch, lay another two plies of tarred felt swabbed between sheets, and a second flowing coat of hot pitch. When last coat of pitch is set, swab on a light coat of hot coal tar, and evenly spread over the whole, clean gravel to a depth of ¾ of an inch.



A. Dry Felt or Sheathing. B. Tarred Felt, each ply shows 13 or 15 in. exposed. C. Pitch between Sheets. D. Flowing Coat of Pitch. E. Gravel.

Specification No. 2. Lay one ply of dry felt or sheathing, over this four plies of tarred felt, medium weight, swabbed with hot pitch between each sheet, then swab on a flowing coat of hot pitch. When set, apply light sticking coat of coal tar and cover ½ to ¾ of an inch with clean gravel.

ADVANTAGES OF SLATE ROOF. A roof does not require any stronger construction for slate than for shingles. This theory has long ago been disproved by practical men. A slate roof adds greatly to the appearance of any class of building, its first cost is the only cost. It is fire proof and therefore less as the rate of insurance. It does not collect ice or snow, and can be deluged with water and dry out in a few minutes. It cannot rot or corrode, while the rain water from a slate roof is pure and clean.

SPECIFICATION FOR SLATE ROOFING. Put in strong valley rafters. Tongue and grooved sheathing is not necessary, only have your boards even in thickness, your roof ¼ pitch or upwards. Line your valleys 20 inches wide at bottom and 15 inches at top with galvanized iron. Chimneys should always have a saddle at back. Step and cloak flash at all intersections around brick work, and cover ridges with galvanized iron. Have your eave troughs so hung that the outside edge will be ½ inch below the run of the roof, so that ice or snow may slide clear. Lay over boarding one ply Slaters' Felt, then cover with "Roofers Supply Company's No. 1 Roofing Slate" (in black, green, mottled or red), and you will have a good roof for ever. A square contains sufficient slate to cover 100 square feet.

PRICES. We carry a large stock of Roofing Slate in black, green, mottled or red, and quote the following prices for slate laid on roof at Toronto. Black Slate, per square, $9.00 to $10.00. Mottled, $9.00 to $10.00. Unfading Green Slate, $11.00 to $12.00. Red, $16.00 to $20.00.

RUST-RESISTING GALVANIZED IRON. Our rust resisting galvanized and black sheets will last five to seven times as long as ordinary galvanized sheets. Write and get particulars.

ROOFING TILE. Write for particulars and prices on our Red, Green or Brown Vitrified Tile, also our promenade flat roof tile.

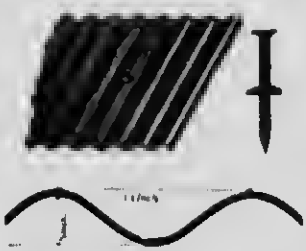
CONTINUED ON NEXT PAGE

READY ROOFING

For sloping roofs on factories, freight sheds, barns, etc., there is nothing better than our prepared wool felt asphalted roofings. Each roll contains sufficient to cover one square feet of roof, also the necessary nails and liquid asphalt for sticking laps. On roofs where there is a short rafter, this style of roofing is often laid from ridge to eave, but we recommend starting at the eave, let the roofing project over eave about 2 inches, and we advise rolling out along roof, stretch tight so as to avoid wrinkles, drive a few nails along top edge to hold in position, the bottom edge can then be turned up and liquid run along, stick down and nail about every 3 inches. This is the most satisfactory way to apply Ready Roofings. Write for samples and prices of Roofers Supply Company's Ready Roofing.

CORRUGATED GALVANIZED IRON

The use of Corrugated Galvanized Iron is increasing steadily each year, as architects and builders recognize in it a very serviceable material for roofs and siding of warehouses, elevators, barns, etc. The iron may be applied to sheeting of wood or direct to iron or wood purlins. Any gauge can be supplied from 18 to 28, weight depending on gauge, from 78 to 240 lbs. per one square feet of iron. All our sheets are corrugated from the very best quality of sheets made for that purpose, they are uniform in size, and the corrugations, being pressed by very heavy machinery, fit exactly. Two sizes of corrugations can be supplied, 2½ inch x ¾ inch and 1 inch x ¼ inch. The sizes of sheets kept in stock are 6, 8 and 10 feet long, the widths depending on the size of corrugation used. Sheets corrugated 2½ inches x ¾ inch are 27½ inches and 34 inches wide, sheets corrugated 1 inch x ¼ inch are 26½ inches and 32 inches wide. Odd sized sheets can be supplied at extra cost.



Half Full-size Corrugation

Quotations from us are based on 100 square feet of iron after corrugating, no allowance being made for laps, the pitch or angle of roof having a great deal to do with the amount of lap required. We recommend for roofs that are known as quarter pitch or 3 inches to the foot, 3 inch end lap and two corrugations side lap. This makes the covering width of a sheet 33 inches wide (2½ inch x ¾ inch corrugations) 28½ inches. For siding we give an end lap of 2 inches and side lap of one corrugation, this makes the covering width of a sheet 30½ inches. Allowing for the different laps indicated above, 121 square feet of iron is required to cover 100 square feet of roof, and 110 square feet of iron is required to cover 100 square feet of siding.

Half full-size Corrugation

Where sheeting is not used, space the purlins not more than 2 feet 6 inches for 26 gauge iron, from 3 feet to 4 feet for 24 gauge, from 4 feet 6 inches to 6 feet for 22 gauge, and from 6 feet to 8 feet for 20 gauge.

A special fastener is required for iron purlins.

We recommend our Lead Washers for use under nail head when applying corrugated iron to a roof. They make an absolutely water tight joint and prevent rust from accumulating under the nail head. One pound is required for two or three squares. The additional cost per square of doing a job with these washers is trifling, while a perfect job is made. The application is shown in the foregoing cut.

Quotations for Corrugated Galvanized Iron delivered F.O.B. any point will be mailed upon application. We also supply Black Corrugated Sheet, painted, for which we will be pleased to receive your enquiries.

SLATE BLACKBOARDS

Our Slate Blackboards are made from the Bangor, Pa., "Big Reds," best in the world for this class of work.

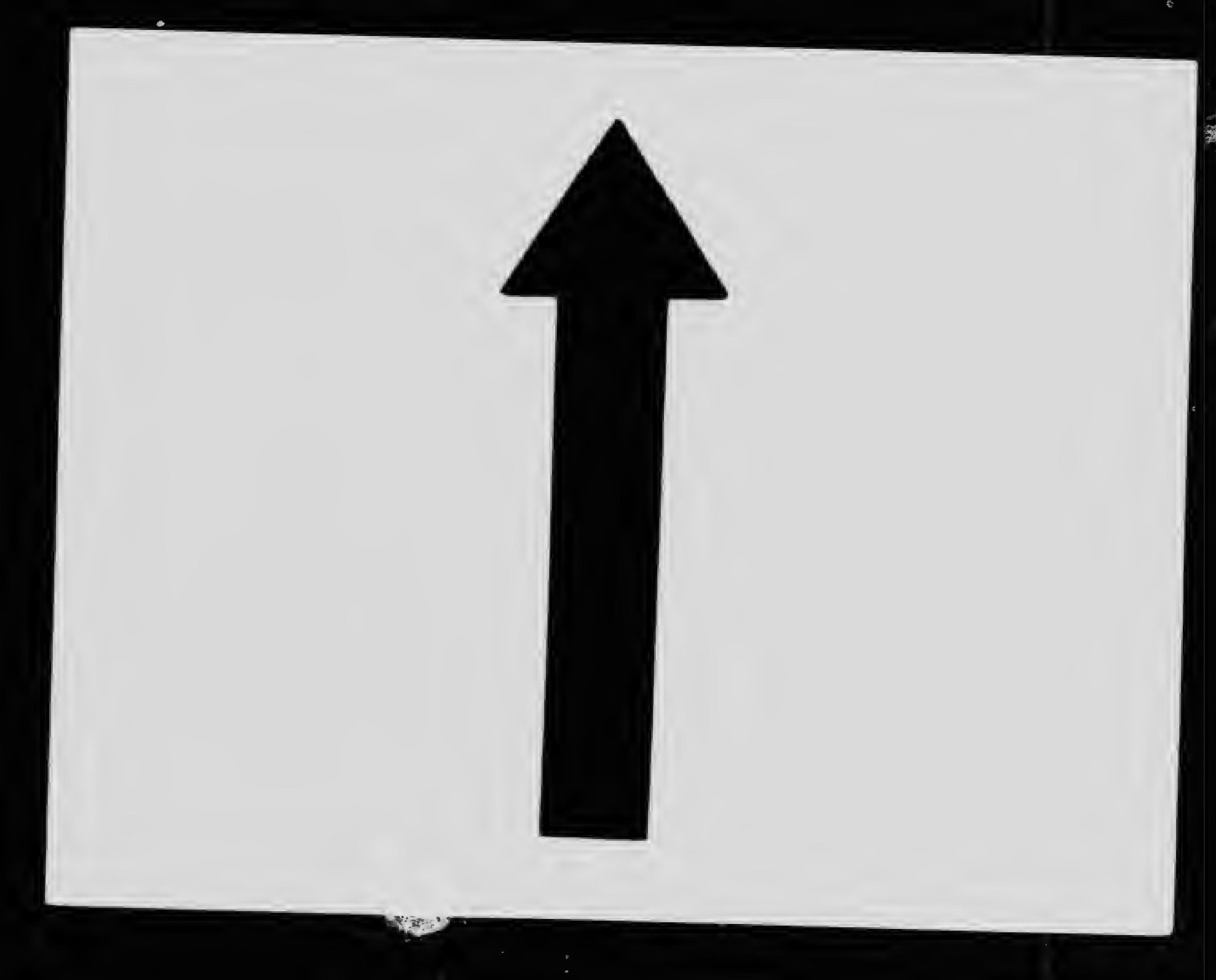
In ordering, be sure and give the exact length of space to be filled, and the width of board required. Our boards are smooth and flat, easily set up in position. The cut shows clearly the best method of setting up. See that joints are even on surface before nailing up the quarter round stops. Prices furnished on application.

SLATE TREADS AND LANDINGS.

We supply Treads and Landings for stairways, etc. Enquiries for prices must state exact size and thickness required. The usual thickness for this class of work is 1¼ inches, and the slate in general use is that known as ribbon stock, being cheaper and just as serviceable as clear stock.

WIRED AND ROUGH ROLLED GLASS

Wired Glass has come into very general use for fireproof windows, also for skylight work. We carry a large stock of the Wired and also of the ordinary Rough Rolled Glass, 3-16 inch and ¼ inch thick. The Wired Glass in general use is ¼ inch thick. We also supply to order Clear Wired Glass, which is used for elevator doors and also for office windows. This Clear Wired being rather expensive, is not carried in stock, but is cut to order. Contrary to the general impression that is held concerning Wired Glass it is not much more breakable than the ordinary glass, in fact the percentage of breakage in cutting Wired Glass is actually less with us than in cutting the ordinary Rough Rolled, and for skylight work, particularly large skylights, there is nothing to compare with the Wired Glass, as it retains its place and remains water-tight when cracked in two or three places in the one light. As a preventive against fire for partition work or in metal windows it has been found invaluable, and where used reduces the premium on insurance very materially. In writing for prices give exact size and quantity.



THE ASBESTOS MANUFACTURING COMPANY, LIMITED

GENERAL OFFICES:
705 EASTERN TOWNSHIPS BANK BUILDING, 263 ST. JAMES STREET,
MONTREAL.

FACTORY AT LACHINE, P.Q.

BRANCH OFFICES:

TORONTO: 601 C.P.R. BUILDING.
LONDON: 55 BANK OF TORONTO CHAMBERS.
WINNIPEG: 619 SOMERSET BLOCK.
CALGARY: 401 MACLEAN BLOCK.

MARITIME PROVINCES:
THE ASBESTOS AND CEMENT PRODUCTS CO.,
QUEBEC, P.Q. ST. JOHN, N.B.
HALIFAX, N.S.

PRODUCTS.

We manufacture "ASBESTOSLATE" SHINGLES, ASBESTOS CORRUGATED ROOFING and SHEATHING, LINABESTOS WALLBOARD, ASBESTOS BUILDING LUMBER, ASBESTOS PAPER, MILLBOARD, SHEET and PISTON PACKING, AIR-CELL PAPER and PIPE COVERINGS.

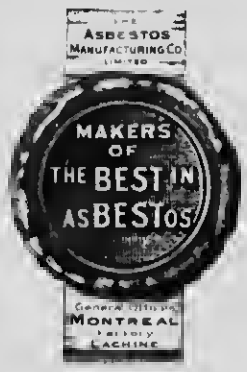
We also handle all products of the Keasbey & Mattison Company, Ambler, Penna., which are not made at Lachine, including 85% Magnesia Pipe Coverings and Cement, Asbestos Packings, Cloth, Theatre Curtains, and all Asbestos textiles.

OWNERS—DOMINION OF CANADA — DRILL HALL, UNIVERSITY AVENUE, TORONTO. — ROOFING CONTRACTORS—J. VAN SICKLER & CO.

"ASBESTOSLATE" SHINGLES.

"Asbestoslate" Shingles may be applied either in the straight-laid or American method, employing a shingle of a square or oblong shape, which is laid exactly similar to natural slate or wood shingles. They can also be laid in the diagonal or French method, using a 12" x 12" or 16" x 16" shingle.

The Dominion Government has adopted the material for many of their larger buildings. The roof of the Armoury shown in the above illustration is laid with 16" x 16" Gray "Asbestoslate," in accordance with the French or diagonal method. We advocate this style, type and size of shingle as being particularly suitable and eminently satisfactory.



COMPOSITION OF "ASBESTOSLATE."

"Asbestoslate" Shingles are composed of about 85% of the best Portland cement, combined with long fibre asbestos, manufactured into thin sheets, the fibres of which form centres of crystallization for the cement, and, extending in every possible direction, tie the mass together with great strength. Enormous hydraulic pressure is then applied while the shingles are still wet, after which the setting is completed in the air. It is evident to one acquainted with Portland cement that this process will produce a product absolutely fire and water proof, and one that will increase in strength and firmness with the passing of time. See specifications, next page.

CONTINUED ON NEXT PAGE

ASBESTOS CORRUGATED.	A thoroughly efficient roofing and sheathing, made in a single thickness and corrugated to add strength.
SIZE.	Standard stock sheets, 27½" x 4, 5, 6, 7, 8, 9, 10 foot lengths, 3-16" thick, 2½" corrugations.
USES.	For roofing and sheathing in a manner similar to corrugated iron, for iron foundries, chemical plants, gas houses, car shops, platform hoods. It has been found especially adaptable for gas houses and chemical plants, where other materials fail on account of the fumes and gases.
APPLICATION.	May be laid over a steel or wood framework, purlin spacing to be not greater than 36". See our Asbestos Corrugated Sheathing Catalogue for detailed specifications.
LINABESTOS WALLBOARD.	Flat sheets of Asbestos and Cement combination similar to our Building Lumber, but not as dense and decidedly cheaper.
SIZE.	Standard stock sheets, 42" x 48", 42" x 96", 3-16" thick.
USES.	For complete interior lining of residences, cottages or bungalows; is especially well adapted to beam ceiling work and can be used to advantage for wainscoting kitchens, bathrooms, hallways, and for rendering fireproof light, elevator or stair shafts, but is not intended for exterior use. (For exterior use ask for our Asbestos Building Lumber.) This product is sold through agents throughout the country.
ASBESTOS BUILDING LUMBER	Made in flat sheets, very hard and dense. Portland cement and asbestos fibre.
SIZE.	Standard stock sheets, 42" x 48", 42" x 96", thickness 1-8" and increasing by 1-8" to 5-8".
USES.	For sheathing the exterior of residences to obtain the English half-timber effect, replacing wire lath and plaster; exterior and interior of garages; wainscoting bathrooms, kitchens, hallways; for ceiling of kitchen or dining-room with beam ceiling finish; lining elevator shafts, for laboratory hoods, and extensively in the electrical industry.
LACHINE WATERPROOF PAPER.	This is a superior quality of saturated waterproof paper, put up in rolls of 500 square feet, weighing about 35 pounds to the roll. It is very tough and especially recommended for use under our Shingles and Building Lumber.

ARCHITECTS' SPECIFICATIONS FOR APPLYING "ASBESTOSLATE."

Roof rafters should be covered with well-seasoned boards not more than 9 inches wide, ridges laid tight together (ship lap or tongue and groove), well spiked to rafters.

PAPER. Cover the roof boards with a good quality of paper (Lachine Waterproof Paper), tacked on with 4-inch side lap and 4-foot lap on all hips and valleys.

AMERICAN METHOD. Over the paper lay "Asbestoslate," manufactured by the Asbestos Manufacturing Company, Limited, Lachine, P.Q., as follows: A cant or furring strip, 3-16" thick and 1" wide (lath will do) to be nailed flush with the lower edge of roof boards, to give the Asbestoslate the proper pitch. Then apply one course of the No. 16, 8" x 16", Newport Gray Asbestoslate, end to end, overhanging the eaves 1½ inches. Over this lay No. 16 Asbestoslate, 7 inches to the weather, in a similar manner to wood shingles, bringing the butts to the eaves edge and being sure to break all joints perfectly. Proceed thus to completely cover the roof.

FRENCH OR DIAGONAL METHOD. Over the paper apply Asbestoslate, Newport Gray, as manufactured by the Asbestos Manufacturing Company, Limited, Lachine, P.Q., according to the French or diagonal method, as follows:

A cant or furring strip not less than 3-16" thick and 1" wide (a lath will do), to be nailed flush with the lower edge of the roof boards to give the Asbestoslate the proper pitch; then apply one course of No. 16 Newport Gray Asbestoslate, end to end, overhanging the eaves 1½ inches, then apply starter No. 35 Newport Gray, bringing the lower edge even with the first course of No. 16. Break the joints perfectly. Balance of the roof to be covered with No. 3 Newport Gray Shingle, 16" x 16", laid diagonally and exposed 13" x 13" to the weather. Each shingle to be nailed with two 1¼-inch galvanized iron needle point nails, as indicated by the nail holes in the shingle. The lower tip to be fastened down with patented copper storm nail, all as shown in the catalogue of the manufacturer.

HIP AND RIDGE ROLL. Hips and ridges to be covered with Asbestoslate Hip and Ridge Roll, same to be properly flashed and fastened in place to hip or ridge pole of sufficient height, with regular copper fasteners, as furnished by the manufacturer. All hips and ridges to be made water-tight previous to the application of the ridge roll.

FLASHING. All hips, valleys, chimneys and against all vertical surfaces, except as otherwise specified, flash and counterflash with each course of shingles, using . . . . . .

STARTING COURSES. For the No. 8, 12" x 12" shingles, starters No. 21 and No. 36 should be used. For the No. 3, 16" x 16" shingles, starters No. 16 and No. 35 should be used.

"Asbestoslate" is now used by all the railroads in Canada, by the Dominion Government, and has been applied to many large, prominent churches, residences, factories, cottages and bungalows throughout the country. It has distinctly proven its merit.

BRANTFORD ROOFING CO., LIMITED

MANUFACTURERS AND EXPORTERS,

BRANTFORD, CANADA

PRODUCTS. "BRANTFORD ASPHALT,"
"BRANTFORD RUBBER,"
"BRANTFORD CRYSTAL"
ROOFING MATERIALS.
"BRANTFORD" ASPHALT SHINGLES (in Colours), AND
BRANTFORD ASPHALT SHEET SHINGLES.
WATERPROOFING AND INSULATING PAPERS.
"ROOF-LEAK" COATINGS (in Colours), TERRA-COTTA AND GREEN.

"BRANTFORD ROOFING." "BRANTFORD ROOFING" applied under a "BRANTFORD SPECIFICATION" may mean either of the following:

No. 1 Brantford Asphalt, 60 lbs. per square.

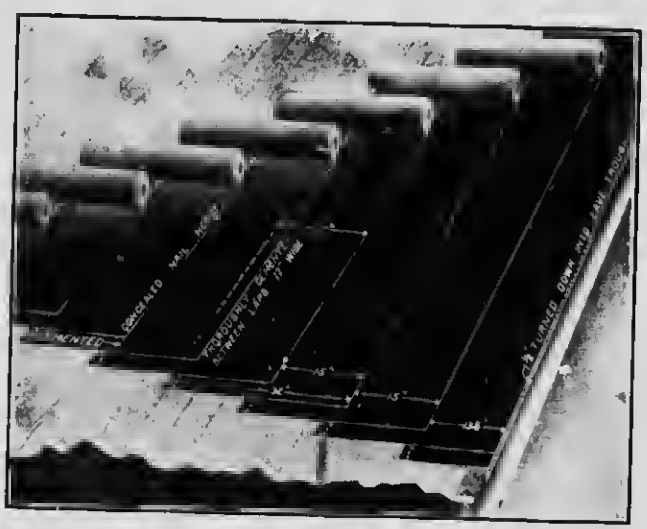
No. 2 Brantford Asphalt, 70 lbs. per square.

No. 3 Brantford Asphalt, 80 lbs. per square.

No. 1 Brantford Rubber, 40 lbs. per square.

No. 2 Brantford Rubber, 50 lbs. per square.

No. 3 Brantford Rubber, 60 lbs. per square.



"BRANTFORD SPECIFICATION."

Laid 15 inches to the weather and cemented between 17 inches with a good coat of asphalt over all, and all nail heads covered.

We use Huff's Patent Stretcher for laying Brantford Roofing; this prevents "Buckling," a common occurrence with other Roofing laid without it.

Therefore specify when ordering "Brantford Roofing," to be laid with "Huff's Patent Stretcher."

Also the same materials may be laid in like manner 10 inches to the weather, or triple thickness, with a fourth lap at the seams, each lap being thoroughly cemented between and one coat over all. *This is a very substantial construction.*

"Brantford Roofing," under its own established "trade-mark," is a guarantee of quality. When offered a roofing without a known brand or trade-mark, you have no assurance of quality.

The felt from which "Brantford Roofing" is made as a base has a cloth resemblance made especially to our specification.

We do by machinery in the factory what others do by hand.

CONTINUED ON NEXT PAGE

BRANTFORD ROOFING FOR ARCHITECTS' SPECIFICATION.

This roofing will be constructed and be specified by the marginal numbers, to insure the weight of goods wanted being supplied.

No. 1 70 lbs. per square F. & W. Felt. Laid with three inch lap, cemented and nailed. Nail heads covered. 90% of 275 melting point asphalt. 150% saturation. Guaranteed 7 years. Price, per square, $3.25 to $3.50.

No. 2 80 lbs. per square F. & W. Felt. Laid with three inch lap, cemented and nailed. Nails covered. 90% of 275 melting point of asphalt. 150% saturation. Guaranteed 10 years. Price, per square, $3.50 to $4.00.

No. 3 135 lbs. per square F. & W. Felt. Laid 15 inches to the weather; cemented 17 inches. All nail heads covered. 1½ gals. Brantford cement per square. 99% of 275 melting point asphalt. 150 to 200% saturation. Guaranteed 10 years. Price, $5.00 to $5.50 per square.

No. 4 155 lbs. per square F. & W. Felt. Laid 15 inches to the weather; cemented 17 inches, third lap. All nail heads covered. 1½ gals. Brantford cement per square. 99% of 275 melting point asphalt. 150 to 200% saturation. Guaranteed 12 years. Price, per square, $5.75 to $6.25.

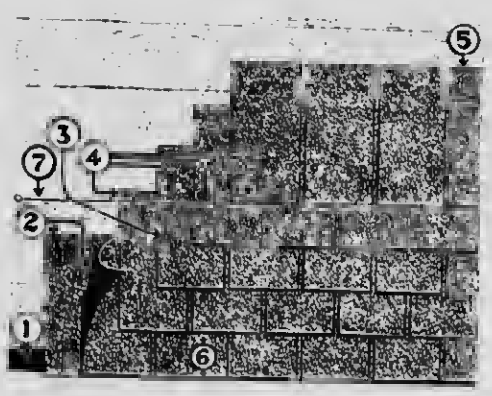
No. 5 175 lbs. per square F. & W. Felt. Laid 15 inches to the weather; cemented 17 inches, third lap 2 inches. All nail heads covered. 1½ gals. Brantford cement per square. 99% of 275° melting point asphalt. 150% saturation. Guaranteed 15 years. Price, per square, $7.00 to $7.50.

No. 6 235 lbs. per square F. & W. Felt. Laid 10 inches to the weather; cemented 22 inches, fourth lap. All nail heads covered. 4½ gals. Brantford cement per square. 99% of 275° melting point asphalt. 150 to 250% saturation. Guaranteed 20 years. Price, per square, $8.50 to $9.50.

HEAD OFFICE, STANDARD BANK, TORONTO
DARLING & PEARSON, ARCHITECTS
COVERED WITH BRANTFORD ROOFING.

BRANTFORD ASPHALT SHINGLES.

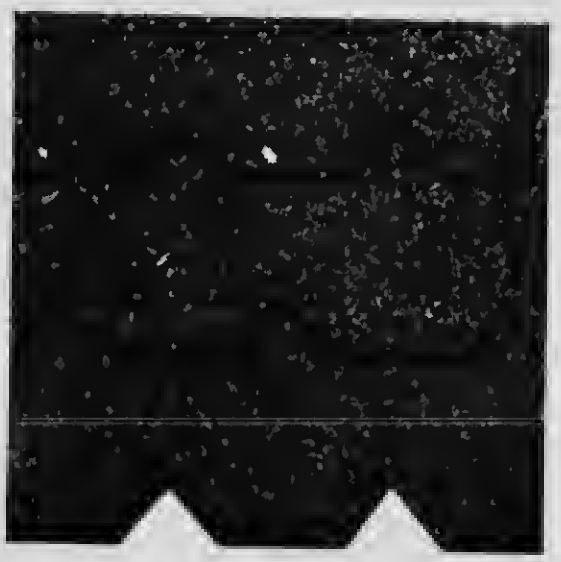
Made in Coloured Red and Green Crushed Rock and White Feldspar producing a fine appearance and durable. No breaking, curling, or splitting. Put up in cartons, 106 shingles each, four cartons containing 424 shingles 8 inches by 12¾ inches in size. Sufficient to cover a square.



BRANTFORD ASPHALT SHEET SHINGLES (HEXAGON DESIGN).

Each roll of Brantford Asphalt Sheet Shingles is 17½ inches wide, 50 feet long, and put up in one strip to the roll. It is laid 6 inches to the weather; four rolls only will be required to cover 100 square feet of roof. If laid 12 inches to the weather, two rolls only will be required to lay 100 square feet.

Artistic effect can be secured by combining contrasting colours. Can be used successfully for decorative purposes, and around gable roofs. This is a single thickness with a third lap.



PARTICULARS.

Ask for copy of our free Catalogue. Prices and estimates furnished on application.

LUDOWICI-CELADON COMPANY

MANUFACTURERS OF

TERRA COTTA ROOFING TILES.

GENERAL SALES OFFICE: MONROE BUILDING,

CHICAGO, ILL.

BRANCHES:

BOSTON, MASS.	OLD SOUTH BUILDING.
CLEVELAND, O.	HIPPODROME BLDG.
DENVER, COLO.	COLORADO BLDG.
KANSAS CITY, KANS.	GRAND AVE. TEMPLE.
MINNEAPOLIS, MINN.	PLYMOUTH BLDG.

BRANCHES:

NEW ORLEANS, LA.	CONTRACTORS AND DEALERS EXCHANGE.
NEW YORK CITY, N.Y.	5TH AVE. BLDG.
PHILADELPHIA, PA.	WEIGHTMAN BLDG.
PITTSBURG, PA.	PARK BUILDING.
WASHINGTON, D.C.	UNION TRUST BLDG.

We are represented in Eastern Canada (from Quebec to Windsor, Ont.,) by our own travelling representative who calls in person on all architects, and will call on builders and owners upon request. In Manitoba and the Northwest Provinces the Waite-Fullerton Company, of Winnipeg, represent us, and in British Columbia we are represented by Carter Dewar Crowe Company, Ltd., 922 Metropolitan Building, Vancouver.

PRODUCTS. We manufacture TERRA COTTA ROOFING TILES in all standard shapes, including the Spanish, Shingle and Continental shapes. We also manufacture Promenade Tiles for flat roofs, in size of 6 in. x 9 in. x 1 in. With these tiles and those for sloping roofs we furnish all necessary fittings.

CHARACTER. All these Tiles are made of shales, and subjected to high degrees of heat after painstaking preparation for the kilns. They are devised to interlock in the only practical and effective manner, so that water is carried to the surface of the next lower tile. Their durability is established by the only unassailable verdict the test of time. The first product of this Company was put on the American market twenty-five years ago at the rate of possibly three hundred squares per *month;* at present, the output of our four factories is approximately seven hundred and fifty squares per *day*, an unmistakable evidence that builders recognize the merits of our ware.

COLOURS. The standard colour of Roofing Tiles is the bright terra cotta red. The greater development of colour study in building has opened a field for glazed roofing tiles, of which we make a very complete line. Aside from the high glazes, we furnish full glazes in satin finish and dull or matt greens.

ESTIMATES AND SPECIFICATIONS. We shall be pleased to furnish catalogue and estimates on application, but inquiries for complete estimates should be accompanied with roof plan and the four elevations. We shall be very glad also to supply suggestions as to specifications for our different patterns, and have these ready prepared, so that immediately upon receiving such request we can mail specifications to those desiring to use Roofing Tiles.

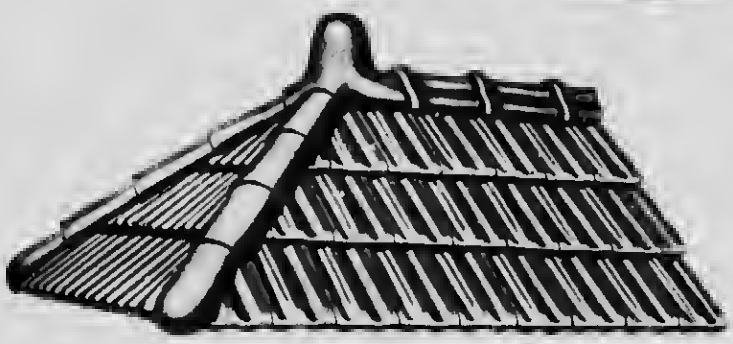
INFORMATION All inquiries for information should be addressed to the Office which is nearest to the inquirer, and for this purpose we give below our firm name a list of our various branch offices.

CONTINUED ON NEXT PAGE

IMPERIAL SPANISH TILE

with Mission eave closures and top fixtures

182 hip starter
102 hip roll
245 cresting and
405 two-way terminal

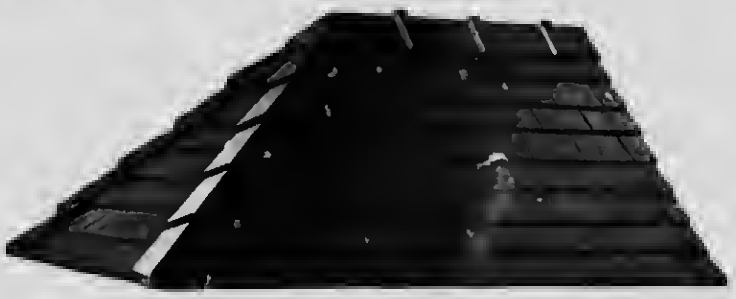


IMPERIAL GERMAN TILE

with 182 hip starter
102 hip roll
206 cresting and
405 two-way terminal

IMPERIAL CLOSED SHINGLE TILE

with 161 hip starter
111 hip roll
203 cresting and
250 two-way terminal



SPECIFICATIONS.

All pitched roofs shall be covered with [Insert Name of Pattern] Tiles made by the Ludowici-Celadon Company with stock fittings suitable for each pattern. The tiles as specified above must be hard burned, of [ ] colour, and in accordance with samples deposited in the office of the architects.

PREPARATION OF ROOF

Before the roofer is sent for, the owner or general contractor should construct roofs in strict accordance to plans, sheath the roofs TIGHT, have all chimneys and walls above roof line completed, have all vent pipes put through roofs, furnish all strips of required width used under hip tiles, furnish all 1" x 3" inch cant strips used under tile at eaves, and have all scaffolding ready for roofer's use. The metal contractor should have all gutters in place on the roof; gutters, whether box, hanging or secret, to extend over the roof sheathing and cant strip, and run under the felt and tile at least eight (8) inches, and should also have in place all valley metal, the width of which must be not less than 24 inches, with both edges turned up ½ inch the entire length of the valley. The valley metal to be fastened with clips and never nailed or punctured in any manner. The valley metal must be laid over one layer of felt running lengthwise the entire distance of the valley. The metal contractor must have in readiness all flashing metal used along side and in front of dormers, gables, skylights, towers, perpendicular walls, also around vent pipes and chimneys, and place same after the arrival of the tile roofer and under his direction.

LAYING OF FELT.

After the roofs have thus been prepared to receive the felt and tile, the tile roofer shall cover the sheathing of the roofs with one thickness of asphalt roofing felt weighing not less than 30 pounds to the square, laying same with a 2½ inch lap and seeming in place by capped nails. The felt should be laid parallel with the eaves and lapped over all valley metal about 4 inches and laid under all flashing metal about 6 inches.

LAYING OF TILE.

The roof having thus been prepared, the tile layer is to fasten tile with copper nails. The roofer shall see that the tiles are well locked together and lay smoothly, and no attempt shall be made to stretch the courses. The tiles must be laid so that the vertical lines are parallel with each other and at right angles to the eaves. The tiles that verge along the hips should be cut close against the hip board, and a water-tight joint made by cementing cut hip tile to hip board with elastic cement. Each piece of hip roll shall then be nailed to the hip board, and the hip rolls cemented where they lap each other. The interior spaces of hip and ridge rolls must not be filled with the pointing material.

THE PEDLAR PEOPLE LIMITED

OSHAWA, ONTARIO, CANADA.

GENERAL DISTRIBUTERS TONCAN METAL FOR DOMINION OF CANADA.

BRANCHES:

MONTREAL, QUE. QUEBEC, QUE. OTTAWA, ONT. TORONTO, ONT.
LONDON, ONT. CHATHAM, ONT. WINNIPEG, MAN.

THE STARK ROLLING MILL CO., CANTON, OHIO, SOLE PRODUCERS.

DESCRIPTION. TONCAN METAL is a sheet metal product of great purity, made from iron ore, possessing exceptional rust and corrosion resisting qualities, and superior in ductility and working quality to modern iron and steel sheets.

TONCAN METAL AFTER 11 MONTHS' EXPOSURE (Still ductile and practically unaffected).

SERVICE. The cut at the top shows a TONCAN METAL sheet ductile and serviceable, almost as good in every way as when placed on test fence 11 months before.

Compare it with adjacent sample of steel in cut next below, so thoroughly rotten that a pencil was run through it with ease.

Both samples, steel and TONCAN METAL unprotected, were exposed on a test fence in the atmosphere common to a rolling mill, for 11 months.

The results are so apparent and so conclusive as to require no comment.

STEEL AFTER 11 MONTHS' EXPOSURE (So thoroughly rusted that a pencil can be run through it.)

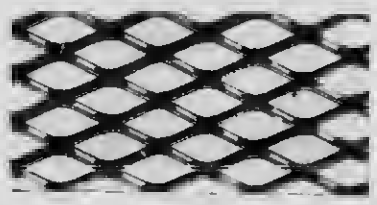
PRODUCTS. TONCAN METAL BLACK and GALVANIZED, RUST-RESISTING, ANTI-CORROSIVE SHEETS for Roofing, Siding, Cornices, Eavestrough, Conductor Pipe, Culverts, and all exposed Sheet Metal Work, and TONCAN METAL LATH.

ROOFING. For Roofing purposes TONCAN METAL is supplied in 1", 2", 2½" corrugated.

SIDING. TONCAN METAL Siding is supplied in all styles, viz., Weatherboard, Imitation Pressed Brick, and Imitation Rock-faced Brick and Stone, in addition to regular 1", 2", 2½" corrugated sheets, painted or galvanized.

TROUGH, PIPE AND FITTINGS. You can obtain this durable material in plain round or corrugated round Conductor Pipe, square Conductor Pipe, and in single or double bead Eavestrough or Ogee shape, lap or slip joint. The fittings in all shapes, styles and sizes.

METAL LATH. TONCAN METAL Lath is rust-resisting and anti-corrosive, is quickly and easily applied, is fireproof, has maximum strength with minimum weight, and economizes space. Painted or galvanized.



CAUTION. Every sheet bears this registered trade-mark:—

TONCAN METAL

DISTRIBUTION. Carried in stock by jobbers and at all our branches.

CONTINUED ON NEXT PAGE

THE PEDLAR PEOPLE LIMITED

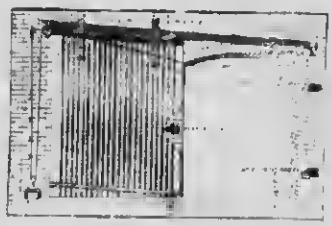
HEAD OFFICE AND FACTORIES:

OSHAWA, ONT.

WRITE TO NEAREST ADDRESS:

MONTREAL.	TORONTO.	LONDON.	OTTAWA.
WINNIPEG.	CHATHAM.	QUEBEC.	ST. JOHN.
SYDNEY.	HALIFAX.	CALGARY.	VANCOUVER.

FIRE DOORS. We have the exclusive Canadian rights of the Saino Patent Fire Door, constructed of corrugated sheets, heavily galvanized, over a steel frame and an asbestos lining. They are rated by the Underwriters' Laboratories in the first-class, and a grade higher than the usual tin-clad, wood-frame fire doors. They will withstand intense heat for long periods of time. Made in standard and special sizes.



SAINO FIRE DOOR

GENERAL SHEET METAL WORK. Our experience, covering a period of fifty-three years in this line of work, enables us to furnish, promptly, the most satisfactory and best products, both as to material and workmanship, in the following lines:

Metal Spanish Tiles and Accessories.
Cornices; Sheet Steel, Zinc or Copper.
Stamped and Ornamental Work.
Skylights Plain or Wired Glass.
Roofing and Siding all styles and gauges.
Eavestrough and Hangers.
Conductor Pipe and Fittings (Square Conductor Pipe our specialty)
Metal Ceilings (more than 1,000 designs)
Portable Metal Garages and Buildings
Metal Factory Bins and Shelving.
Toncan Metal Sheets and Formed Products

VENTILATORS.

METAL TOP GLASS TOP

PEDLAR'S "PERFECT" VENTILATORS
Metal Top or Glass Top An Automatic Exhaust

Pedlar's "Perfect" Ventilators, either Metal Top or Glass Top, come as near perfection as is possible without the aid of an exhaust fan. There is no possibility of down draft. They will not admit rain or snow, and operate equally well in calm or stormy weather. Used in Railroad, Warehouse, Factory and similar work with the greatest satisfaction. Fitted with automatic closing fusible links to stop all draft in case of fire Fitted with plain or wired glass in all sizes from 8 in to 72 in shaft diameter.

BIRD & SON

MANUFACTURERS OF

ROOFINGS, WATERPROOF BUILDING PAPERS, WATERPROOFING FELT, ROOFING PAINTS, WATERPROOFING PRODUCTS AND WALL BOARD

MAIN OFFICE: HAMILTON, ONTARIO

WINNIPEG, MAN. MONTREAL, QUE. VANCOUVER, B.C. ST. JOHN, N.B.

MILLS: HAMILTON, ONTARIO; PONT ROUGE, QUEBEC.

PRODUCTS

ROOFINGS: **NEPONSET** Proslate, **NEPONSET** Paroid, **NEPONSET** Red Rope, **NEPONSET** Asphalt Felt, for Built Up Roofs.

WATERPROOF BUILDING PAPERS: **NEPONSET** Red Rope, **NEPONSET** Black, Coted.

WATERPROOF INSULATING PAPERS: **NEPONSET** Red and Black, **NEPONSET** Kosal.

SOUND DEADENING FELT: **NEPONSET** Fibrian.

WATERPROOFING FELT: **NEPONSET** Waterdyke.

PAINTS and COMPOUND: **NEPONSET** Waterdyke Preservative Paint, **NEPONSET** Paroid Paint, **NEPONSET** Red Rope Paint, **NEPONSET** Compound.

WALL BOARD: **NEPONSE**. Wall Board.

NEPONSET PROSLATE ROOFING.

For residences, club houses, bungalows, porch roofs, and all other buildings requiring an artistic roof or siding. Rich red in color. Furnished with straight or ornamental edges, more attractive than stained shingles. Complete directions and fixtures (galvanized caps and nails and cement of same color) for laying, packed in each roll. Put up in rolls 18" wide, containing sufficient material to cover one hundred square feet. Straight Edge, $4.25 per roll. Ornamental Edge, $4.50 per roll.

NEPONSET PAROID ROOFING.

For industrial, railroad, farm and other similar buildings. Slate in color. Endorsed by National Board of Fire Underwriters. Already has a past record of fifteen years' service on buildings throughout the country and abroad. Complete directions and fixtures (galvanized caps and nails and cement) for laying, packed in each roll. Put up in rolls 36 inches wide, containing 108 and 216 square feet. Price, 2½ cents per square foot for Paroid, and 3½ cents per square foot for Paroid heavy. (See under "Help in Specifying.")

NEPONSET RED ROPE SHEATHING AND ROOFING.

The highest grade waterproof sheathing paper for use under stucco, shingles or clapboards and under slate or tile roofs. Particularly valuable where the building is to be stuccoed at some future time, as it will remain waterproof exposed to the weather for several years. Also used as a low-cost and temporary roofing or siding. Put up in rolls 36 inches wide, of 100, 250 and 500 square feet. Price, 1¼ cents per square foot. (See under "Help in Specifying.")

Residence, King Street East, Hamilton, Ont., roofed with **NEPONSET** Proslate.

NEPONSET BLACK WATERPROOF BUILDING PAPER.

A high-grade waterproof building paper, the standard of architects for general use. For use under stucco, shingles, or clapboards; under slate or tile roofs and between floors. Put up in rolls 36 inches wide, containing 250 and 500 square feet. Price, 45 cents per 100 square feet. (See under "Help in Specifying.")

CONTINUED ON NEXT PAGE

COTED

A waterproof, dust proof paper at low cost, used as an all round building paper and especially in fireproof construction over the screeds and under the finished wooden floors, to prevent warping and to keep down dust. Put up in rolls 36 inches wide, containing 500 and 1,000 square feet. Price, 31 cents per 100 square feet.

NEPONSET FLORIAN SOUND DEADENING FELT

A scientific, sanitary sound deadener, for use under floors, under metal roofs and for partitions, built on the dead air cell principle. By actual tests, made by the Worcester Polytechnic Institute, it was found that **NEPONSET** Florian is six times as effective as the ordinary felt. Put up in rolls 40 inches wide, containing 500 square feet. Price, 90 cents per 100 square feet. (See under "Help in Specifying.")

NEPONSET ASPHALT FELT

For built up roofs and general waterproofing work in connection with **NEPONSET** Compound. Specifications furnished upon application. Made in 15 lbs. weight per 100 square feet. Price, $50.00 per ton.

NEPONSET WATERDYKE FELT

For waterproofing foundations, mill floors, battery room floors, swimming pools, bridges, tunnels, etc. Comes in rolls of 400 square feet. Price, $1.30 per 100 square feet. (See under "Help in Specifying.")

Mr. Arthur Hawkins, Winnipeg, Man.
Architect: H. H. G. Russell
Covered with **NEPONSET** Black Roofing

NEPONSET PAINTS AND COMPOUND.

NEPONSET Waterdyke Preservative Paint for damp proofing concrete and preserving structural iron and steel and woodwork.

NEPONSET Paroid Paint for **NEPONSET** Paroid and other prepared and metal roofings. **NEPONSET** Red Rope Paint for **NEPONSET** Red Rope Roofing and metal roofs. Put up in one-gallon cans. For special jobs where entire package will be used, in 5, 10 and 20 gallon packages. Always to be used in well-ventilated places. One gallon covers about 240 square feet. $2.05 per gallon.

NEPONSET Compound for cementing together plies of **NEPONSET** Waterdyke Felt and **NEPONSET** Asphalt Felt. Comes in barrels, 35 gallons to a barrel. 35 cents per gallon.

NEPONSET WALL BOARD.

This material is an inexpensive substitute for laths and plaster, or sheathing or any other wall covering.

This, of course, is not a product that would be specified for highest class interiors, but it is excellent for cottages, stores, restaurants, factories and many other places, also for partitions, booths, exhibits, etc.

Made in three finishes—plain oak, cream white, and burnt umber. Comes in

32 Inches Wide.

7 feet, 16 panels to the bundle, contains about 298 square feet.
8 feet, 14 panels to the bundle, contains about 298 square feet.
9 feet, 12 panels to the bundle, contains about 288 square feet.
10 feet, 12 panels to the bundle, contains about 320 square feet.

Price, $30.00 per 1,000 square feet.

NEPONSET WALL BOARD BATTENS for covering joints between [illegible] and seven-eighths inches wide and in same lengths and finishes as the wall board.

Price, 60 cents per 100 linear feet.

HELP IN SPECIFYING.

You will find our book, "Specifications for All Roofing, Building Insulation and Waterproofing Work," helpful in making out your specifications. Let us know if you have not a copy on file. With this you can specify for all kinds of work, the materials you prefer, and always get the most effective results.

CO-OPERATIVE SERVICE.

Any special waterproofing or other problems upon which you desire advice may be referred to our Engineering and Consulting Department.

NEPONSET SPECIFICATIONS EASILY FILLED

There are 10,000 dealers carrying Bird **NEPONSET** Products, so your specifications can always be easily and quickly filled.

Where there is no dealer, we pay the freight.

The prices quoted above apply only to Eastern Ontario, Quebec and Maritime Provinces. Prices for the Western Provinces on application.

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

TORONTO MONTREAL WINNIPEG VANCOUVER

ROOFING MATERIALS.

Trade Mark

PRODUCTS

ROOFING MATERIALS.—J M ASBESTOS READY ROOFING AND SIDING, J M ASBESTOSIDE, J M BUILT-UP ASBESTOS ROOFING, J M "20TH CENTURY" READY ROOFING, J M CORRUGATED ASBESTOS ROOFING, J M TRANSITE ASBESTOS SHINGLES, J M ASBESTOS SLATERS FELT.

INSULATING AND SHEATHING MATERIALS.—KEYSTONE HAIR INSULATOR, J M HAIR FELT, J M PURE COMPRESSED CORK SHEETS, J M IMPREGNATED CORK BOARDS, J M WEATHERTITE PAPER, J M MINERAL WOOL, J M ASBESTOS FIRE AND DAMP PROOF FLOORING FELT.

Building Materials.—J M Cork Floor Tiling, J M Sanitol Closet Seats, J M Transite Asbestos Wood, J M Asbestos Smoke Stack Linings, J M Asbestos Vault Lining, J M Asbestos Stucco and Wall Plaster, J M Asbestos Cloth and Asbestos Theatre Curtains, J M Transite Asbestos Wood Picture Machine Booths, J M Transite Asbestos Wood Ventilators, J M Asbestos Fire and Acid Proof Chimney Cement, J M Sea Grass Linings, J M Asbestos Roll and Sheet Mill Board, J M Non-Burn Building Paper, Architectural Acoustics, J M Asphalt Waterproofing Cement, J M Asphalt Saturated Fibre, J M Waterproofing Asbestos Felt, J M Liquid Waterproof Coating, J M Concrete Primer, J M Cut Stone Backing, J M Plaster Board, J M Mastic.

Pipe and Boiler Covering.—J M Asbestoard, J M Asbestos Sponge Felted, J M 85% Magnesia, J M Asbestos Fire Felt, J M Air Cell, J M Wire Stitched Anti Sweat, J M Zero, J M Plumbing, J M Brine and Ammonia, J M Sheets and Blocks for Boilers, Heaters, etc., J M Asbestos and Magnesia Insulating Cements, J M Sectional Underground Conduit.

Electrical Materials.—"Noark" Standard Fuse Devices, "Noark" Service Boxes, "Noark" Service Meter Protective Devices, Fink and J M Lumolite Systems of Electric Lighting for Show Windows, Show Cases, Theatre Stages, Stairs, Fink Reflectors, J M Fiber Conduit, etc.

J M ASBESTOS READY ROOFING

The basis of J M Asbestos Roofing is pure asbestos. This mineral is made into sheets of asbestos felt, after which each sheet is individually saturated. The sheets are then securely cemented together with genuine Trinidad Lake Asphalt and the result is a solid, homogeneous mass of asbestos, stone and asphalt mineral, making a roofing that is *all mineral all the way through*.

From the crude materials to the finished product every process in the manufacture of this roofing is directly under our own supervision. This enables us, with our experience of over half a century in the manufacture of roofings, to market an unbeatable high standard in quality, and to manufacture and sell this roofing at low prices.

Life wanted.—To all intents and purposes, J M Asbestos Roofing is solid stone, with the everlasting qualities of stone. It affords perfect fire protection and contains nothing that can rust, rot, melt, crack or deteriorate with age. Even gases and chemical fumes do not affect it. This roofing is still in good condition on buildings in all parts of the Dominion, after more than a quarter century of service.

J M Asbestos Roofing will not burn like shingles and ready roofings made of organic materials, will not rot, crack or warp, and has no gravel to be washed or blown off and clog up gutters. Like all stone, this roofing never needs painting, gravel or any other protection. J M Asbestos Roofing is cheaper in first cost than slate shingles, but in most cases less per year of service than any other roofing.

The white top weather surface of this roofing gives it a neat and attractive appearance and reflects the heat, which together with the great insulating quality of the Asbestos, makes buildings from 15 to 20 degrees cooler in hot weather than any other roofing. The exact difference in temperature depending, of course, on what the other roofing is.

As this roofing has a smooth surface, any leaks, which may be caused by nails protruding from the roof boards or by carelessness on the part of workmen, can be readily located. It is difficult to locate leaks in gravel or slag roofings, as the leaks do not always show directly under the defect in the roofing, making it necessary to virtually tear off these roofings to find the leak.

Another advantage in the smooth surface of J M Asbestos Roofing is that it sheds water more rapidly than gravel or slag roofings, thus extending their life. Foot traffic causes much damage to gravel and slag roofings, as it loosens the gravel and injures the plies.

J M Asbestos Roofing is shipped ready to apply, with J M Roofing Cleats, nails, and Lap Cement, and full instructions for applying, packed in each roll.

When laid with J M Roofing Cleats, this roofing presents an unbroken surface of white, as the cleats do away with the necessity of smearing the edges with black cement to secure water tight joints.

BRANDS

Although we furnish a variety of brands of J M Asbestos Roofing, it should be distinctly understood that *there is not one inferior*. The difference between the brands consists only in the number and arrangement of the plies. Where maximum durability is desired, the Four Ply Brand is recommended, while for lighter and more temporary construction the heavy patent grade will be found satisfactory.

Four Ply Brand.—Of all Asbestos and Asphalt Four Ply Roofing, shipped in flat sheets 32 x 36 inches, so that it will divide in flat. The roofing is suitable for steep surfaces, laid white side to the weather. On flat surfaces having a pitch of less than 2 inches to the foot, the black side should be laid to the weather.

Four Ply Brand.—A very perfect roofing when laid over good, smooth sheathing boards. While not as serviceable as the Four Ply Brand, owing to its lighter weight, it is made of exactly the same materials. Furnished in one and two square rolls, 32 inches wide.

Specifications.—Remove all loose nails, chips and other rubbish, leaving the surface perfectly clean. See that all ends of boards are to stay on rafter or purlin, so that they can not spring. If edges of board are rotted up draw them down and smoothly nail on projections. See that all knot holes are covered or filled up before commencing to lay roof construction as follows:

Work to be commenced at the eaves or gutters, unless the roofing parallel with the same applies. The roofing in sheets not more than 32 feet long. Lapping the perpendicular seams 6 inches and the horizontal seams 2 inches, breaking the joints. J M Asphalt Lap Cement to be applied between the laps after which the roof shall be nailed with large headed clout or barbed galvanized nails, 1 inch shank, nailing 4 to 6 inches back from the lap, 6 inches apart, centre to centre. After nailing is completed, seams are to be coated with J M Asphalt Lap Cement.

All valleys and wooden gutters to be covered with the roofing specified. Material to be placed in same so that the sheet runs lengthwise with the gutter or gutter so that no unnecessary laps or joints will occur in the same. J M Built-up Asbestos Roofing, under most circumstances will be best but not under such conditions.

Base flashings shall be composed of the same material as the roofing, made from a sheet 22 inches wide, placing 8 inches on the flat part of the roof and 8 inches on the upright, cementing solidly to the smooth work with J M Asphalt Cement, also where the flashing shall be nailed, which will be 4 inches from the top, nail with a layer of single Ply Asbestos felt 4 inches wide, weighing not less than 9 pounds to 100 square feet, shall be embedded in same. Next the shall be trowelled another layer of J M Asbestos Cement. All brick walls, chimneys and upright work to be flashed with the J M Asbestos System.

CONTINUED ON NEXT PAGE

J-M ASBESTOSHIL

J-M Asbestoshil is a well-oiling felt for [illegible] waterproofing [illegible] made of the same materials as J-M Asbestos Roofing previously described and for the same purposes. It is recommended as a substitute for sheathing paper, deadening felt, etc., for use under slate, tile, shingle and other roofings. It is also recommended as a lining for [illegible] to give additional resistance properties. J-M Asbestoshil can be cut with a knife or scissors and applied with a hammer. It weighs about 14 pounds per square and is put up in rolls containing 500 square feet each. Asbestoshil can be used with J-M Asbestos Roofing does not fit the roofing line. It can be laid rapidly and quickly applied. It will not dry out and crack, and is not affected by the presence of a building, and requires no coatings of painting. Readily furnished in flat sheets of any size, or cut to smaller size, if desired.

J-M Asbestoshil is shipped in rolls complete with special lining [illegible] advertised and [illegible] ready for use as lap for laps and give extra protection to the building.

Brands — J-M Shield Brand [illegible] composed of four separate plies of asbestos felt.

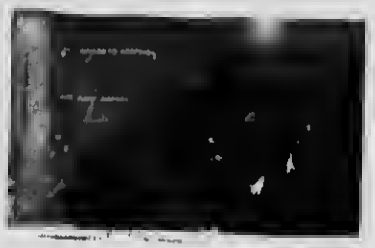
J-M Star Brand is similar to Shield Brand, except that it has three plies instead of four.

J-M BUILT-UP ASBESTOS ROOFING

This product is built up on the roof of three-ply layers of Pure Asbestos Felt and genuine Trinidad Lake Asphalt [illegible] partially recommended for that roof, or [illegible] over [illegible].

Advantages — Like J-M Asbestos Ready Roofing, previously described, J-M Built-up Asbestos Roofing, due to its [illegible] construction, gives perfect fire protection and is [illegible] proof, acid proof, gas proof, heat proof and cold proof, and never needs coating, gravel or slag to protect it from the elements. It also has all the other advantages of our Ready Roofing above mentioned.

Detail Application of J-M Built-up Asbestos Roofing over sheathing [illegible] Board



Detail Application of J-M Built-up Asbestos Roofing over Concrete Surface [illegible] Deck

Preparation — Standard J-M Roofing [illegible] Roofing [illegible] Before [illegible] Roofing is put on all rubbish from the roof, leaving the entire deck perfectly clean. See that all nail heads are driven flush with the surface. Use no nails less than two inches long and of sufficient thickness to penetrate the roof boards at least three inches, where wider boards are used. If [illegible] are applied properly draw them down and smooth off all projections. See that roof is [illegible] properly [illegible] and that all knot holes are covered before commencing to lay roof construction as follows:

First, by one thickness of J-M Salamander Brand two-ply Asbestos Roofing, consisting of one impregnated sheet of asbestos weighing not less than 45 lbs. per square, and one sheet of unimpregnated asbestos properly cemented together at the factory with J-M Ajax Brand of refined asphalt. The Salamander felts to be lapped two inches, with the unimpregnated sheet next the sheathing boards, and thoroughly cemented at the laps with Ajax Asphalt. The ply to be nailed with [illegible] inch barbed roofing nails, driven through flat metal discs [illegible] inches square and not less than one inch in diameter, spaced not more than four inches apart and two inches from the edges of each sheet. The nails to be so driven as to pierce both sheets of felt, and to be driven home flush with the surface of the felt. Nails to be spaced not more than four inches apart in all directions. Over the entire surface of the first ply of felt, mop with J-M Ajax Brand Asphalt, and while thoroughly hot embed into it two plies of J-M No. 1 Asbestos Ajax Felt, these felts to be rolled close behind the mop, so that no possible amount of asphalt can take place. The two upper plies of felt to be laid in hot asphalt in such a manner as to conceal all nail heads on the felting material.

Note — Metal may be used for this base flashing, if desired.

Above the base flashing there shall be placed a counterflashing of J-M Asbestos cement, [illegible] to be properly cemented to the wall and brought down over the base flashing at least 2 inches.

Note — Where walls do not exceed 12 inches in height the flashing may be all in one piece to be carried up and over the top of brick wall, the coping to be laid over the flashing.

Otherwise a plied J-M Felt, cut to the desired width, should be laid over the top of all brick walls before coping is put in place.

After the roof is properly laid and otherwise finished, there shall be spread over it an even thickness of J-M Asphalt Liquid Roof Coating, applied cold and thoroughly brushed out, in such a way that the entire roof may have a black and even appearance. This coating to be carried up to the top of base flashing, and finished neatly under the lower edge of counterflashing.

To meet the demand for a roof of superb insulating qualities for use on cold storage buildings, ice houses, breweries, dairies, etc., we have designed the white surface J-M Built-up Asbestos Roofing. The instructions for this type of roofing, that is, the composition, with reference to the [illegible] brought

J-M Built-up Roofing Over Concrete, Tile or Iron. — The owner or general contractor is to see to it that the roofing contractor has the deck of the building absolutely free from all obstructions and is maintaining it free from all nonstructures other than the materials, tools and appliances belonging to the roofing contractor, and to remove all loose nail chips and other rubbish leaving the surface perfectly clean.

The owner or general contractor must also agree to see the roofing contractor has smooth concrete surface. Iron [illegible] inches, depressions or projections, and [illegible] scuppers to provide for the [illegible] and water toward gutters and downspouts. The guarantee on this roof is contingent upon the contractor doing the above.

Over the foregoing shall be laid a plied J-M Ajax Concrete and Asphalt Roofing, to be constructed as follows:

Three plies of J-M Asbestos Impregnated Ajax Felt to be Asphalt saturated and to weigh not less than 14 pounds per square feet, single thickness. The Asphalt Cement shall be best quality Trinidad Lake Asphalt refined by The Canadian H. W. Johns-Manville Co. Ltd. known as their Ajax Asphalt Cement, and there shall be used not less than 60 pounds gross weight per hundred square feet of completed roof.

The liquid asphalt coating shall be The Canadian H. W. Johns-Manville Co. Ltd. J-M Asphalt Roof Coating, using not less than one and a half gallons per hundred square feet of completed roof. The materials shall be used as follows:

First coat the concrete with J-M Concrete Primer, so as to leave a perfect bond between the concrete and the asphalt. Then mop the surface with J-M Ajax Brand of Asphalt, heated to [illegible] and into it, while hot, embed three plies of No. 1 J-M Asbestos Impregnated Ajax Felt. The entire surface between each ply shall be mopped with hot Ajax Asphalt and the felts shall be rolled close behind the mop so that no missing of asphalt can possible take place. The felts shall be so laid that [illegible] inches [illegible] of each ply will be exposed to the weather.

Over all steep concrete surfaces the felts must be laid up and down the roof, never across, and proper forecourts shall be provided to prevent any possible movement of felts during hot weather.

J-M 1-Ply Built-up Asbestos Roofing shall be carried up on the free walls at least two inches [illegible], and for flashing there shall be provided an apron of J-M Asbestos Flashing material [illegible]" wide, bent to conform to angle and mopped to roof with J-M Ajax Asphalt.

Above the base flashing there shall be placed a counterflashing of J-M Asbestile or metal, same to be properly cemented to the wall and brought down over the base flashing at least 2 inches.

Note — Where walls do not exceed 12 inches in height the flashing may be all in one piece to be carried up and over the top of brick wall, the coping to be laid over this flashing. Otherwise a plied of J-M Ajax Felt cut to the desired width, should be laid over the top of all free walls before coping is put in place.

After the roof is so laid the entire surface shall be coated with J-M Asphalt Roof Coating, as above, to give a uniform and even appearance.

J-M REGAL ROOFING

To meet the demand for a low priced roofing, we are prepared to furnish J-M Regal. This is a smooth surfaced, ready roofing, composed of a high-grade wool felt, which is manufactured in our own mills, and Trinidad Lake Asphalt. The Asphalt is also processed in our own refineries, which enables us to offer in J-M Regal the best grade of "rubber" type roofing that can be made.

J-M Regal Roofing is put up in rolls of test for 216 square feet, with nails and J-M Roofing Cleats packed in each roll.

THE STANDARD PAINT CO. OF CANADA, LIMITED

52 Victoria Square,
MONTREAL.

Sales Offices and Warehouses:
Winnipeg. Vancouver. Calgary.

Factory: Highlands, Lachine Canal, Montreal.

PRODUCTS.

RU-BER-OID (our standard quality of roofing); KA-LOR-OID (in handsome permanent shades of red and green); AL-BAR-OID (Ruberoid in white); DURO RIGID SHINGLES; DOMINION & ETREKA (Asphalt Roofings); also RUBEROID WATERPROOFING CLOTH; RUBEROID WALL BOARD; RUBEROID FLOOR CLOTH; "STANCO" CARPET FELT; "SNUG" FELT; BURLAP FELT; SOVEREIGN SHEATHING FELT; DAMP-PROOFING PAINT; "IMP" BRAND CEMENT FLOOR FINISH and MASONRY FINISH; "GIANT," "P. & B." and "HERCULES" INSULATING PAPERS; "P. & B." PRESERVATIVE PAINTS, "P. & B." ELECTRICAL COMPOUNDS; "P. & B." ELECTRICAL WEATHERPROOF TAPE; "P. & B." ELECTRICAL INSULATING VARNISHES; "P. & B." GARDEN HOSE MENDER, Etc., Etc.

Station of Canadian Pacific Railway Co., Vancouver, B.C.
Roofing Type: Ru-ber-oid built-up
Engineers and Constructors: Westinghouse, Church, Kerr & Co.
Architects: Barott, Blackader & Webster

EFFICIENCY

Ru-ber-oid has now been marketed for 23 years in most parts of the world, and in that long period has absolutely demonstrated its claim to permanency and dependability. It is manufactured at our works near Montreal for the Canadian trade, and is also made at three factories in the United States, and at London, England; Hamburg, Germany; Paris, France; and St. Petersburg, Russia. We are making no exaggerated statement therefore, in saying that it is the *Universal Roofing*. The fact that it is in general use in all parts of the civilized world is absolute proof of the service it will give under *all climatic conditions*.

Ru-ber-oid can be laid in *single layer* or by the *built-up* or *reinforced* method on steep or on flat roofs.

We submit the following as features worthy the careful consideration of architects and engineers in comparing the Ru-ber-oid method of built-up roofing (Specifications following) with tarred felt and gravel roofs and other types of roof covering:

1. Ru-ber-oid Asphaltic Compound will not crack in winter nor will it melt in summer heat, as pitch does.

2. Ru-ber-oid Asphaltic Compound is much more plastic than pitch, insuring a roof covering that will readily answer to all changes of temperature.

3. By actual laboratory test, it has been demonstrated that the pitch ordinarily used in tar roofing is twice as susceptible to changes of temperature as Ru-ber-oid Asphaltic Compound.

4. The Standard Paint Company's Asphalt Saturated Felt, used in specifications following, is a *wool felt* of much higher quality than ordinarily employed in the making of tarred felt.

5. The Ru-ber-oid type of Built-up Roofing, when laid, is homogeneous fabric through and through. It requires no sand, gravel or slag to weight it down. Therefore, the work cannot be shirred, intentionally or otherwise, by incompetent workmen or by the use of inferior material; also the roofing can be more readily and inexpensively repaired and leaks be more quickly located.

6. Ru-ber-oid can be laid with equal success on steep or flat roofs.

CONTINUED ON NEXT PAGE

(TO FOLLOW DESCRIPTION OF ROOF CONSTRUCTION)

SPECIFICATIONS TYPE "A" RU-BER-OID ON CONCRETE. RU-BER-OID BUILT-UP OR REINFORCED ROOFING. COPYRIGHT, OTTAWA, 1914.

Over the foregoing there shall be laid a RU-BER-OID Built-up Roof as follows:

1. PREPARATION. The concrete should be finished with a hard, clean surface, not trowelled, but properly graded, and free from saucers or depressions.

Suitable raglets shall be provided in all parapet walls or projections above the roof level, to permit the installation of counter-flashings.

It is desirable that a concrete fillet be formed in all angles between the roof surface and parapet walls, etc., to afford an easy turn for the flashings.

Plumbers' pipes or other projections are to be in place before the roofing is laid and provided with suitable metal collars wherever necessary.

2. MATERIALS. Quantities following per 100 square feet of completed roof surface:

Two layers S.P.C. Saturated Felt 208 sq. ft.	30 lbs.
One layer 2-ply RU-BER-OID ROOFING 108 sq. ft	42 lbs.
RU-BER-OID HARD COMPOUND	100 lbs.
S.P.C. Asphaltum Paint $\frac{1}{2}$ Imperial gallon	5 lbs.
Material per 100 square feet	177 lbs.

3. APPLICATION.—*(a)* The concrete surface shall be thoroughly dry and swept clean of all dust and loose particles of concrete.

(b) Paint the entire concrete surface with one coat S.P.C. Asphaltum Paint, using not less than $\frac{1}{2}$ Imperial gallon per 100 square feet.

(c) Mop the painted surface with hot RU-BER-OID HARD COMPOUND, using not less than 30 lbs. per 100 square feet, and, while hot, imbed the two thicknesses of S.P.C. Saturated Felt, lapping each sheet 19 inches over the preceding one and mopping with the hot RU-BER-OID HARD COMPOUND the full width of the lap, so that in no case shall felt touch felt.

(d) Install all outlets and collars, nailing same securely in place. Cement a reinforcement of S.P.C. Asphalt Saturated Felt into all angles and around all outlets and over all collars with RU-BER-OID HARD COMPOUND.

(e) Mop the surface of the two thicknesses of S.P.C. Saturated Felt with the RU-BER-OID HARD COMPOUND and imbed into this, while hot, the top sheet of 2-ply RU-BER-OID ROOFING. Lap each sheet of RU-BER-OID ROOFING two (2) inches on the preceding one, applying the RU-BER-OID COMPOUND well between the laps.

(f) Finally, brush the hot RU-BER-OID HARD COMPOUND carefully and evenly along the top of the lap to a width of from four to six inches.

(g) Counter-flashings shall be firmly fixed into raglets with wedges and pointed with cement.

NOTE 1. The above specifications apply to roofs having a pitch not greater than 4 in. per foot. In cases where the pitch is greater than 4 in., we supply a Special RU-BER-OID HARD COMPOUND of a higher melting point.

NOTE 2.—The material in above specifications should be applied from ridge to eaves on roofs of pitch greater than 1 in. to the foot.

TYPE "B." Substitute 1-ply RU-BER-OID Roofing for 2-ply in par. 2.

TYPE "C." Substitute $\frac{1}{2}$-ply RU-BER-OID Roofing for 2-ply in par. 2.

TYPE "D" Substitute $\frac{1}{2}$-ply RU-BER-OID Roofing for 2-ply in par. 2, and substitute 22 lbs. S.P.C. Saturated Felt for 30 lbs. in par. 2.

GUARANTEES. We are prepared to bid for material alone or for Roofing laid complete. We guarantee:

Type "A" 10 years without coating or 15 years with 3 coats RU-BER-INE at intervals of 3, 7 and 11 years from date of laying.

Type "B" 10 years without coating.

Type "C" 7 years without coating or 10 years with 1 coat RU-BER-INE 5 years from date of laying.

Type "D" 5 years without coating or 10 years with 2 coats RU-BER-INE at intervals of 2 years and 7 years from date of laying.

BUILT-UP KA-LOR-OID ROOFING. Specifications follow exactly the wording of Type "A," the only change being the substitution of "Heavy Weight KA-LOR-OID" (Red or Green, as desired) for "2-ply RU-BER-OID" in par. 2.

SPECIFICATIONS, RU-BER-OID OVER BOARDS, KA-LOR-OID OVER BOARDS. TYPES A, B, C, D. Substantially the same as foregoing specifications for CONCRETE ROOFS. Full and complete data furnished on request. *Guarantees* given for *same periods* on each type, as detailed foregoing.

CONTINUED ON NEXT PAGE

RU-BER-OID.

Our standard quality. Made in three weights, designated plies:

1 ply, for barns, outbuildings etc. Guaranteed 5 years. Average weight, 35 lbs. per square, with fixtures.

2 ply, for dwellings, warehouses, stores, etc. Guaranteed 10 years. Average weight, 45 lbs. per square, with fixtures.

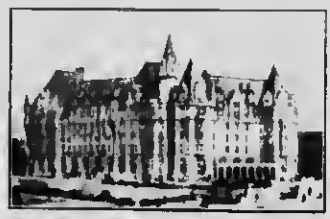
3 ply, for factories and severest usage. Guaranteed 15 years. Average weight, 55 lbs. per square, with fixtures.

RU-BER-OID is the *pioneer* smooth-surfaced ready roofing. The 2-ply and 3-ply grades are rated by the Canadian Fire Underwriters' Association as "first class" the lowest or base rate.

For testimonials and fuller details, write for our booklets, "*All About Roofing*," "*Around the World with RU-BER-OID*" and "*RU-BER-OID Why*."

GRAND TRUNK PACIFIC HOTEL
EDMONTON, ALTA.
ROOF SHEATHED WITH RU-BER-OID ROOFING.
ARCHITECTS — ROSS & MACDONALD.

FORT GARRY HOTEL, WINNIPEG.
ROOF SHEATHED WITH RU-BER-OID ROOFING. BASEMENT WATERPROOFED WITH IMPERVITE.
ARCHITECTS — ROSS & MACFARLANE.



CHÂTEAU LAURIER HOTEL,
OTTAWA, ONT.
ROOF SHEATHED WITH RU-BER-OID ROOFING.
ARCHITECTS:—ROSS & MCFARLANE.

KA-LOR-OID.

The RU-BER-OID in handsome permanent shades of Red and Green. This is a patented product, the only permanently coloured ready-to-lay roofing marketed in Canada. The colours are made an integral part of the exposed surface in the process of manufacture *not painted on*. Made in the following weights:

Red—Medium weight, 50 lbs. per square, packed for shipment. (Guaranteed 5 years.)

Red—Heavy weight, 50 lbs. per square, packed for shipment. (Guaranteed 10 years.)

Green—Heavy weight, 50 lbs. per square, packed for shipment. (Guaranteed 10 years.)

KA-LOR-OID is adapted for churches, dwellings, theatres, bungalows or any structures where artistic effect is desired.

ROOFED WITH DURO SHINGLES

AL-BA-ROID

The RU-BER-OID in White. This result is obtained by imbedding a sheet of asbestos in the exposed surface, insuring not alone a permanently white roofing, but adding to the fire-resistance of the roof covering. Made only in one weight—45 lbs. per square, complete with fixtures. Guaranteed 10 years.

TRADE MARK
AL-BA-ROID
REGISTERED

DURO RIGID SHINGLES.

The only rigid prepared roofing shingles marketed in Canada. Manufactured in Slate and Red; size 8 in. x 12½ in.; laid 5 in. to the weather. Applied in the same manner as wooden shingles. Put up in packages each sufficient to cover 25 square feet of surface. No exposed nails.

CONTINUED ON NEXT PAGE

CRONOLITE. A medium-priced Asphalt Roofing, surfaced on both sides with crushed granite. Made in customary weights—1 ply, 35 lbs.; 2 ply, 45 lbs.; 3 ply, 55 lbs.

DOMINION. An Asphalt Roofing similar to Cronolite, with one side surfaced with crushed granite. Customary weights.

EUREKA. An Asphalt Roofing similar to Cronolite, but asphalt smooth-coated on both sides. Customary weights.

EUREKA, TYPE L. An Asphalt Roofing, smooth-coated both sides. Special weights—1 ply, 40 lbs.; 2 ply, 50 lbs.; 3 ply, 60 lbs.

RU-BER-OID WATERPROOF CLOTH. Made of heavy duck, saturated and coated with RU-BER-OID Gum. Marketed in colours, Black and Red, and in two weights. Suitable for covering decks, porches or any exposed surface subject to hard wear under foot.

No. 1 Black—27 lbs. per square, complete with fixtures

No. 2 Black—37 lbs. per square, complete with fixtures

No. 1 Red —30 lbs. per square, complete with fixtures

No. 2 Red —40 lbs. per square, complete with fixtures

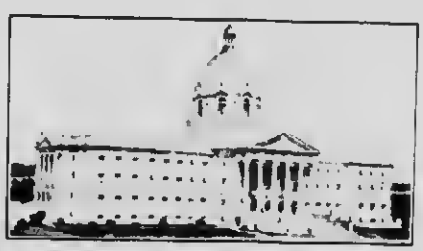
RU-BER-OID WALL BOARD. Manufactured in two weights, medium and heavy, from a wood pulp board, which is suitably sized to prevent absorption of moisture. Made in two styles, one consisting of solid board and the other with the individual layers of board cemented together by means of asphalt. Also having an impregnated back to prevent the absorption of moisture from the exterior of buildings. Made with a plain surface suitable to receive coat of paint of any appropriate colour, which we will supply specially for this purpose, also with a grained effect, exactly duplicating the surface and colour of various kinds of wood, including mahogany, golden oak, weathered oak and Jamisero.

RU-BER-OID FLOOR CLOTH. An improved floor covering, adapted for use in residences, hospitals, sanitariums, churches, lodge rooms, billiard rooms, factories, stores, theatres, etc., or for any interior where linoleum, oilcloth or cork carpet has hitherto been used. Its distinctive features are: Greater durability, giving longer service than old-time flooring. Absolutely waterproof and non-absorbent, no porous canvas back being used as in linoleum. More sanitary, as its composition is so dense that it affords no lodgment for germs, and it will not absorb grease, kitchen drippings or like refuse. May be unrolled and laid at almost any indoor temperature. Highly fire-resistant and may be used with safety around stoves and heaters. Burning embers will not ignite it. Made in Black and Red. Put up in rolls 36 in. or 4 4 and in 72 in. or 8 4 wide. Rolls about 30 lineal yards.

"STANCO" CARPET FELT. Marketed in weights 16 oz., 20 oz. and 24 oz. per lineal yard. Rolls 36 in. wide, each containing 50 lineal yards.

"SNUG" FELT. Marketed in one weight only, 24 oz. per lineal yard, rolls containing 50 lineal yards. A high-grade material for high-grade interiors.

BURLAP FELT. Marketed in Grey, Red and Green. Suitable for interior lining as a cheap substitute for lining boards. Put up in rolls 36 in. wide, containing 400 square feet.



PARLIAMENT BUILDINGS, EDMONTON, ALTA.
SHEATHED THROUGHOUT WITH SOVEREIGN FELT

SOVEREIGN SHEATHING FELT. Put up in rolls 36 in. wide, containing 400 square feet. Saturated and single-coated with RU-BER-OID Gum. This material was first marketed in Canada some six years ago, to meet an insistent demand for a sheathing free from the objectionable odour of tar paper and of superior quality, to insure permanency in construction, freedom from draughts and dampness—in a word, a sheathing of lasting character, flexible, waterproof and wind-proof, of high tensile strength, that will not harbour vermin. It possesses great insulating qualities, thus contributing to the comfort of the occupier, and insures a cool interior in summer and a warm one in winter, saving coal bills.

JOHN LYSAGHT, LIMITED

MANUFACTURERS,

BRISTOL, ENGLAND.

A. C. LESLIE & CO., LIMITED

MONTREAL, QUE.

MANAGERS, CANADIAN BRANCH.

PRODUCTS.

"QUEEN'S HEAD" and other well-known brands of GALVANIZED SHEET IRON.

"QUEEN'S HEAD."

This brand is the standard the world over for high-class work. Made of the best grade of soft Open Hearth Steel, absolutely flat, it will stand the most severe working tests. It differs from all other makes in the system of galvanizing, which gives a smooth, bright surface, free from thinly coated or defective spots, ensuring the greatest durability. First cost may be a little higher, but it is the cheapest in the end.

HOW TO SPECIFY.

All Galvanized Iron Work to be of "QUEEN'S HEAD." No other brand will be accepted as "equal." Brand to appear on every sheet.

CORNICES } *To be made of 28G "Queen's Head" Galvanized Iron.*
CONDUCTORS } *All Conductors to be either Corrugated or made with expansion joints.*
FLASHINGS } *To be of "Queen's Head" Galvanized Iron.*

GUTTERS To be made of 26G "Queen's Head" Galvanized Iron.
All Gutters to be set with an even continuous fall to rain conductors.

SKYLIGHTS } *To be made of 24G "Queen's Head" Galvanized Iron.*
VENTILATORS } *Skylights to have condensation gutters with discharge at eaves.*

No other brand can fairly be substituted for "Queen's Head," for none is equally durable.

WEIGHTS PER SQUARE FOOT.

GAUGE.	28	26	24	22	20	18	16
WEIGHT. . .	.687 lbs.	.750 lbs.	1.061 lbs.	1.313 lbs.	1.600 lbs.	1.950 lbs.	2.625 lbs.

Lysaght's Sheets are rolled as true to gauge as possible, not varying more than 5% from these average figures. This is important, as light weight sheets are often supplied.

"FLEUR-DE-LIS."

Is made of the same quality of Steel as "Queen's Head," and is fully guaranteed for working purposes. It differs chiefly in the galvanizing, which is somewhat lighter than that on "Queen's Head," but is at least equal to any other brand.

CORRUGATED SHEETS.

"Redcliffe" is the standard brand for this purpose, made of soft Steel, uniform in weight, and of exactly the same finish as "Fleur-de-Lis." For special work requiring the most durable galvanizing, "ORB" Brand should be specified.

THE A. B. ORMSBY COMPANY, LIMITED

TORONTO. ASSOCIATED WITH WINNIPEG.

THE METAL SHINGLE & SIDING CO., LIMITED,

PRESTON, MONTREAL, SASKATOON, CALGARY.

PRODUCTS. NONPAREIL PUTTYLESS SKYLIGHT.

Cannot Leak Lasts Indefinitely– Simple in Construction Not Expensive.
Endorsed by architects and approved by governments.

CONSTRUCTION. All Metal and Glass—no putty used.

See lead glazing cushion No. 5, Fig. 2. It has parallel vertical walls that will conform perfectly with the uneven surface of the skylight glass. This is detachable and reversible, so that it can be applied after all the field work, except glazing, has been done.

There are two vertical walls on each cushion and two cushions on each bar, so it is absolutely impossible for any water to get in. Perfection is the aim of the patentee, and a special gutter, No. 7, Fig. 2, has been arranged to take care of any water which might get through under abnormal conditions.

The perfection of these cushions has been tested by leaving off caps Nos. 3 and 4, Fig. 2, during several severe storms, and not a leak has developed.

The bars of galvanized or lead-coated steel are made as No. 7, Fig. 2. This is the principal part of the bar, and is bent up to form condensation gutters. Although this makes a bar of great strength, it is reinforced by the bent metal No. 6, Fig. 2, which supports the cushion and glass, and forms an extra dust gutter.

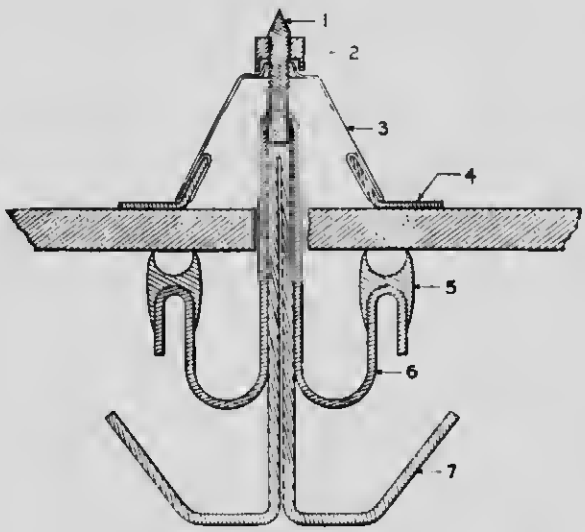


Fig. 2.


NEW C.P.R. TRAIN SHEDS AT WINDSOR STREET STATION, MONTREAL

INSTALLATIONS. On these sheds we have supplied and erected over 100,000 square feet glass area Nonpareil Skylights. This is one of the largest skylight contracts ever let in America. There was used in connection with this contract over 100,000 square feet of ¼-in. ribbed wired glass, 30 tons 16-oz. cold-rolled copper, and over 100 tons of lead-coated 16 gauge bars. The Canadian Pacific Railway adopted this Nonpareil bar in preference to all other makes.

OTHER RECENT SKYLIGHT INSTALLATIONS

Redford Building, Montreal	Peter Lyall & Sons, Contractors. Ross & Macdonald, Architects.
Lewis Building, Montreal	E. G. M. Cape, Contractor.
Canadian Vickers Maxim Co., Maisonneuve.	E. G. M. Cape, Contractor
Imperial Wire & Cable Co., Montreal	E. G. M. Cape, Contractor.
Aldtild Pulp & Paper Co., Iraquois Falls, Ont.	
University of Saskatoon.	

These are just a few of the many.

GEO. W. REED & CO., LIMITED

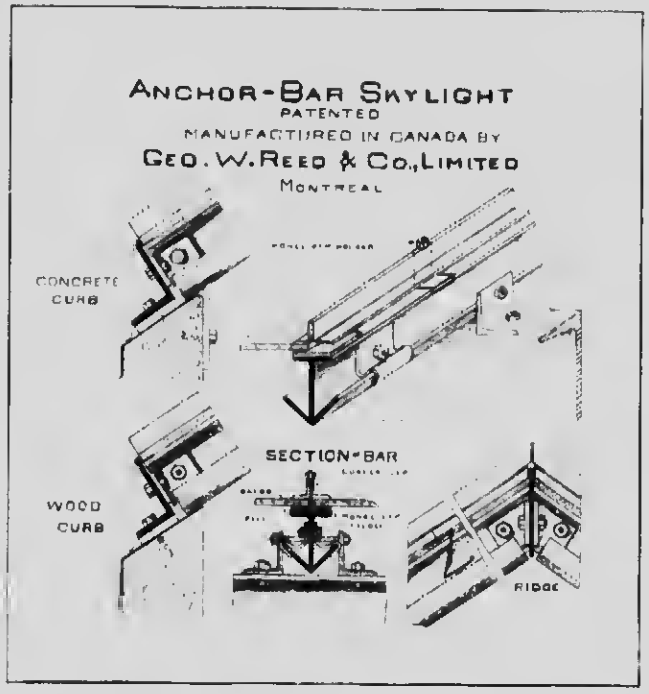
47 St. Antoine Street,

MONTREAL.

BUSINESS. We do Slate, Metal, Gravel, Plastic and Tile Roofing, Asphalt and Cement Work, Waterproofing, and Sheet Metal Work of all kinds.

ROOFING. Sixty years' experience in the roofing business in Montreal and vicinity enables us to handle all its problems with satisfaction to all concerned.

THE ANCHOR BAR SKYLIGHT.



The Anchor Bar Skylight is especially designed for large areas where the bar length is in excess of eight feet. The bar proper consists of two structural members, a 2 x 1½ inch tee and a 1½ x 1½ inch angle, which are secured together with malleable iron clamps at sufficient intervals to secure proper strength and rigidity. The angle member serves as a gutter for condensation. Glass rests on flange of tee on a bed of pure wood felt. Copper saddles are set about four feet apart to receive caps after glazing.

Especial attention is called to method of securing skylight to curbs, as shown in accompanying cut, clearly indicating the great strength obtained. The thrust of skylight is directly against the heavy angle, which is lag screwed to curb and which cannot give way while curb holds. Compare this feature with other so-called "improved" types of skylight construction, which are largely weak at the curb. The relative position of tee flanges and base angle forms a shoulder, which prevents any possibility of the sliding of glass (an important feature in large skylights). A copper apron protects base angle from weather, and also prevents snow from percolating through condensation outlets.

Cross gutters, caps, apron and saddles are of copper unless otherwise noted. By increasing depth of tee stem, the strength of bar is increased, but for ordinary spans our standard 2 x 1½ inch tee should be specified.

RECENT CONTRACTS.

New Birks Building, Montreal
Can. Pac. Ry., Completion of Contract
City Hall Annex, Montreal
Dominion Textile Factory, Magog
Dominion Government, Marine and Fisheries Bldg., Halifax
Fraser Building, Montreal
Sir R. Forget, Residence
Fairmont School, Prot. Bd. of School Com.
Montreal Locomotive Works
Metropolitan Bank Bldg., Montreal
National Breweries, Dow Branch
Standard Building, Montreal
St. Lawrence Sugar Refinery

VENTILATORS.

We are the sole licensed Canadian manufacturers of the celebrated Burt Ventilator. These Ventilators are made with either glass or metal top. The Sliding Sleeve is a very valuable feature found in no other ventilator. A special booklet dealing with this Ventilator will be sent on request.

SPECIFICATION FOR "REED'S" FOUR-PLY FELT AND GRAVEL ROOF.

There shall be four thicknesses of best No. 1 tarred roofing felt, weighing not less than 14 lbs. per hundred square feet, single thickness, and not less than 120 lbs. of best straight-run gas pitch, and not less than 400 lbs. gravel, from ¼" to ⅝" in size, per 100 sq. ft. of completed roof. Applied as follows: Lay four full thicknesses of felt, lapping each 24" over the preceding one, mopping with hot pitch the full width of the 24" lap between the plies. All walls, curbs, etc., to be well flashed up with felt of least 10". Spread over the entire surface of the roof a uniform coating of pitch, into which, while hot, embed the gravel. The gravel must in all cases be dry. This roof we guarantee for ten years.

BASEMENT FLOORS

Our vulcanite underfloor is perfectly sanitary, being absolutely damp-proof and vermin-proof. Top floor may be either cement or wood. Asphalt and Cement work of all kinds executed. Asphalt is especially adapted for use in School Basements and Playrooms, Locker Rooms, Drill Halls, Breweries, Abattoirs, Railway Baggage Rooms, etc.

OTHER ADVERTISEMENT. See Fireproof Windows, Doors, etc., on page 342.

CANADIAN SUPPLY & CONTRACTING CO., LIMITED

STRUCTURAL WATERPROOFING ENGINEERS AND CONTRACTORS,

TORONTO, CANADA.

PRODUCTS.

Let us tender on your ROOFING, WATERPROOFING and FLOORING specifications.

We undertake contracts for Roofing, Waterproofing, Tar Rock, and Mastic Asphalt Flooring. Our Complete Equipment enables us to execute the work in accordance with Architects' and Engineers' Specifications.

We supply Roofing, Waterproofing and Insulating Materials.

ONTARIO NATIONAL BRICK CO., LIMITED, COOKSVILLE, ONT. 500,000 SQ. FEET ROOFING ON ABOVE BUILDING SUPPLIED BY U.S.

FOUNDATIONS OF TEN C.P.R. FREIGHT TERMINALS, TORONTO. WATERPROOFING ON ABOVE FOUNDATIONS EXECUTED BY U.S.

TORONTO STRUCTURAL STEEL CO., LIMITED, WESTON, ONT. 60,000 SQ. FEET OF TAR ROAD FLOORING LAID BY U.S.

NOTE. Our work on many notable Canadian Buildings is a guarantee of our ability to successfully carry out the most important contracts.

CANADA LUMBER COMPANY, LIMITED

"THAT REMINDS ME"
THOSE HARDWOOD VENEERED DOORS

1106 McKINNON BUILDING,
TORONTO, ONT.

TELEPHONE
ADELAIDE 1918

C L Co 150

C L Co 151

C L Co 213

C L Co 210

C L Co 152

CANADA LUMBER COMPANY'S DOORS.

In Veneered Hardwoods, are made up in many kinds of woods, and so manufactured to be ready for either natural or the many stained finishes, when leaving our plant.

Birch, Plain Red Oak, Satin Finish Red Gum, for either Circassian Walnut or Mahogany finish, Yellow Pine in rotary cut large figured flake or straight grained veneers, Quarter-Sawn Red and White Oaks, are some of the woods entering into our product.

Our Veneered Door Plant is housed in buildings erected to suit the needs of the manufacturing of perfect doors and the equipment is the best that money and brains can put together. With this excellent equipment, including our special dry kilns for properly treating hardwood lumber, we guarantee to give our customers doors equal to the finest on the market. On this page are shown a few designs as manufactured by us, but we wish it known that we are able to make special designs when wanted by architects for use in office buildings, hotels, apartment houses, etc.

Veneered Hardwood Doors, being the finest grade of doors manufactured, must not be handled and exposed like ordinary stock doors, but need a small amount of attention when the doors are first received by you, just like any other high grade piece of furniture would receive from your hands.

TREATMENT OF HARDWOOD DOORS.

All wood is porous, and the drier and more thoroughly seasoned it is the more readily it absorbs moisture. For example. Should an unfinished door "in the white," as received by you, be placed in a damp room or warehouse or a newly plastered house not yet dry, it rapidly absorbs the moisture in the air, naturally expanding and swelling the wood in the door. Later on, when such a door is dried out, the wood shrinks and twists and requires renewal and repairs.

All this trouble can be avoided if proper care and attention is given in the handling of high grade veneered doors.

First. As soon as the doors are received from the depot and the packing and crating removed, have them filled with one coat of good filler. Two coats are better, but one coat well applied will do. Doors being shipped "in the white" and filled as above, will be protected from the moisture in the atmosphere until ready for use, but doors, even so filled, must be kept in a reasonably dry place until hung and varnished. Never place a veneered hardwood door, nor any other interior finish, in a freshly plastered building. Be sure that the plaster is thoroughly dry, and where possible, it is best to dry out the building with artificial heat. When a door has been fitted and hung, paint the top and bottom edges of the door with pure lead and oil. Veneered doors exposed to the weather must be filled and given at least two heavy coats of good exterior varnish. This should be applied to the edges as well as on the flat surfaces. Hang no outside exposed door without immediately filling and varnishing same.

Providing the above suggestions are followed after the doors leave our warehouse, we guarantee "our doors" to stand and prove satisfactory.

We carry these doors in stock in the city. Samples of them can be seen at our office.

We handle everything in lumber. Special bills of timber cut to order on short notice.

High-grade Oak, Maple and Birch Flooring for dwellings, etc. Also good sound grades of the above for factory floors, and in Maple up to 5 inches thick when heavy strain and rough usage prevails.

C L Co Style S.

NOTE. The above cut shows the construction of the best Hardwood Veneered Door made.

The above are a few cuts of our Hardwood Doors. We can supply any design required.

C L Co 219

BATTS LIMITED

OFFICE AND MILL: 368-400 PACIFIC AVENUE,
WEST TORONTO, ONT.

PRODUCTS — We manufacture VENEERED and PINE DOORS, STAVED COLUMNS for Exterior and Interior Use, FRAMES, SASH, FLOORING, PINE and HARDWOOD TRIM, NEWEL POSTS, BALUSTERS, TURNINGS, STAIR MATERIAL, Etc

COLUMNS — High-grade Staved Columns, manufactured in all kinds of wood, in any diameter or length, are a specialty with us. A large stock of columns always on hand, enables us to make prompt shipment. Our facilities for the execution of orders to special design are such that we can satisfactorily meet any requirement

NEWEL POSTS — In Quarter Cut Oak, Birch, Georgia Pine. Several designs always in stock. Special Newels to detail quickly and to order.

BALUSTERS — We carry a large stock of Verandah and Stair Balusters ready for immediate shipment, and we are well equipped for turning Balusters to detail

SASH — Our complete, up-to-date Sash Machinery is turning out large quantities daily. All sash are dovetailed at the meeting rail

DOORS — We are specially well equipped in our Door Department, having the best door machinery obtainable. In our Glue Room we have a 100-ton Power Press, used exclusively on our Veneered Doors. Only thoroughly kiln dried White Pine is used for our Veneered Door cores. A large stock of door veneers in all the cabinet woods are always kept on hand

B.L. No. 106, ¼ Cut Oak

B.L. No. [illegible] ¼ Cut Oak

B.L. No. 106, ¼ [illegible] Oak

B.L. No. 111, ¼ Cut Oak

B.L. [illegible] No. 11, ¼ Cut Oak

Design B.L. No. 1

Design B.L. No. [illegible]

Design B.L. No. 4

Design B.L. No. 5

B.L. STAVED CONSTRUCTION

The above illustration shows our lock joint and our method of connecting the cap and base to the shaft in our stock columns. Both ends of the shaft are bedded in Mastic Putty. This is our own [illegible], and, as far as we know, is not in use by any other manufacturer. By this means it is impossible for water or moisture to get to the centre of our columns

CATALOGUES — A complete catalogue of our various lines will be mailed on request, and we particularly invite correspondence from architects, builders and contractors regarding special work

THE RAT PORTAGE LUMBER COMPANY, LIMITED

MANUFACTURERS OF EVERYTHING FOR A BUILDING.

WINNIPEG, MANITOBA

VENEER DOORS

The Veneers used in building Rat Portage Doors are from many varieties of hard and soft woods. The principal woods are Red, White and Unselected Birch, plain Red and White Oak and Red and White Quarter Cut Oak, Mahogany, and Yellow Fir.

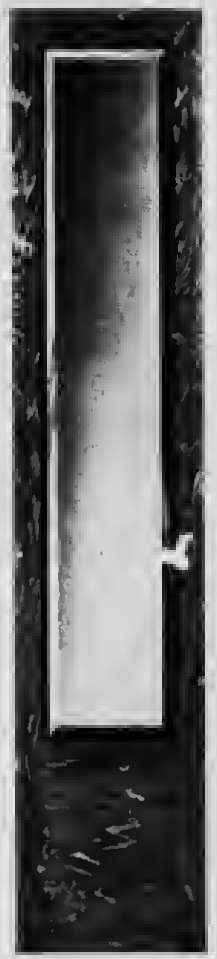
Cut plain Oak, Birch and Fir Veneers are rotary cut and selected for their beautiful figures. Our Veneer Doors are all built on cores made from kiln dried pine strips, glued together under powerful pressure. Rat Portage Doors are perfect doors and are guaranteed as good as the best.

INTERIOR FINISH

We are experts at reading architects' designs, and employ only experts to manufacture Interior Finish to their details and requirements.

We make a specialty of manufacturing Interior Finish, Store and Bank Fixtures, Counters, Hotel Bars, Store Fronts, Church Furniture, etc., in stock or special designs.

A large supply of seasoned Hard and Soft Wood always on hand. Rat Portage work is always good work and guaranteed.



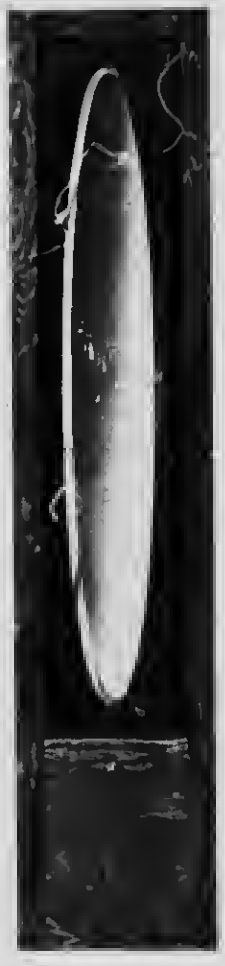
SIDE LIGHTS M 108.

This Sidelight is designed to go with our M 108, 109 or 89, also made with bottom panel to match M 189. Cut shows plain Red Oak filled with bevel plate glass. We build with any wood to match the door.

We manufacture designs to match any standard door made.

CRAFTSMAN DOOR M 117

A beautiful form of sash door for use between dimly lighted rooms and in vestibules. Can be glazed with any form of glass. Illustration shows Red Birch, square edge stiles, rails and bats with bevel plate glass. We build with any wood desired.



SIDE LIGHTS M 106.

This beautiful Oval Sidelight will match any form of oval light door. Cut shows plain Red Oak filled with bevel plate glass. We build with any wood to match door. Art glass makes a beautiful filling.

We make a specialty of manufacturing to architects' special designs.

Architects will find it to their own and clients' benefit to specify Rat Portage Finish and Designs. Estimates cheerfully given on all stock or special designs of work. The largest capacity in Western Canada. We manufacture everything for a building.

OUR MOTTO:

QUALITY. PRICE. SERVICE.

THE DUPLEX HANGER CO.

GENERAL OFFICE AND WORKS

EAST 53RD STREET AND LAKESIDE AVENUE,

CLEVELAND, OHIO.

AGENTS

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CALGARY AND EDMONTON: CANADIAN EQUIPMENT AND SUPPLY CO., LTD.

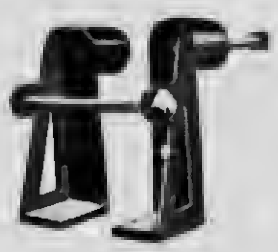
PRODUCTS. We are the sole manufacturers of the "Duplex" Joist, Wall and I-Beam Hangers, "Duplex" Post Caps, Post Bases, Wall Plates and Wall Boxes, both in Steel and Malleable Iron, for use in the erection of heavy mill-constructed warehouses and factory buildings, as well as in ordinary joist-constructed buildings. Also the "Cleveland" Galvanized and Corrugated Wall Ties and Snow Guards; the "Duplex" Concrete Inserts for Floors and Girders.

ENDORSEMENT. "Duplex" Hangers and Post Caps are recognized by Architects and Builders as the standard. Endorsed by the Building Commissioners of the large cities of the United States and Canada. Approved by the National Board of Fire Underwriters, and a reduced rate of Insurance will be granted where "Duplex" is used.

SPECIFICATION. If architects and engineers, in specifying Hangers and Post Caps, will mention the name "Duplex," the proper Hangers and Caps for the timbers will be furnished. "Duplex" Hangers and Post Caps are designed to carry the timbers for which they are intended with a large factor of safety.

REFERENCE. We will furnish list of installations and any special information, upon request.

"DUPLEX" JOIST HANGER FOR ORDINARY CONSTRUCTION



"DUPLEX" JOIST HANGER FOR HEAVY MILL CONSTRUCTION

"DUPLEX" WALL HANGER

"DUPLEX" EXTRA HEAVY WALL HANGER

"DUPLEX" STEEL POST CAPS FOR ONE, TWO, THREE OR FOUR WAY TO SUIT ANY FRAMING

"DUPLEX" WALL BOX

"DUPLEX" STEEL POST BASE

CHARLES MULVEY MANUFACTURING COMPANY

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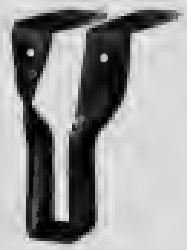
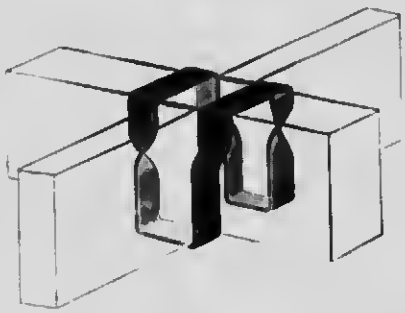
PRODUCTS — Manufacturers of BUILDING SPECIALTIES for Mill Constructed Buildings

ILLUSTRATIONS — We present herewith cuts of some of the leading Building Specialties manufactured by us and used very largely throughout the United States for mill constructed buildings.

HANGERS. — We make Hangers to fit any special condition.
All Joist Hangers bent while hot.
When ordering, please give net exact size of timbers.

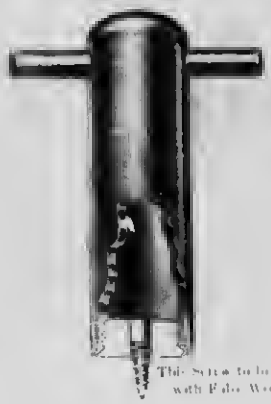


Joist Hanger



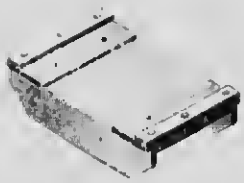
Double Hanger for Studdi

Wall Hanger

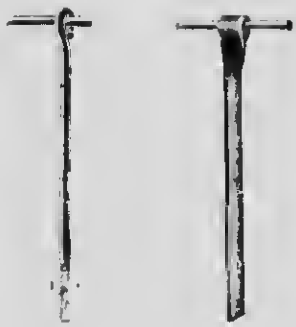


This Screw to be used with Fiber Wood

Insert for Concrete Wall



Cast Wall Bracket



Anchors of Every Kind

INSERT FOR CONCRETE WALLS. — How do you fasten your Shafting, Pipe, Hangers, etc., to Concrete Walls? Use this Insert and save all labour and expense of breaking holes in concrete.
Send for descriptive pamphlet

PRICES AND INFORMATION — We aim to make our prices reasonable, and, to the observer, it is evident at once that the cost of handling and installing in the building any of the products shown is extremely low.
Prices and other information furnished upon request

JAS. G. WILSON MFG. CO.

MANUFACTURERS OF WOOD ROLLING PARTITIONS AND WARDROBES.

132 So. Michigan Avenue, CHICAGO, ILL. | 1 West 29th Street, NEW YORK, U. S. A. | Factory, NORFOLK, VA.

PRODUCTS. WILSON'S PATENT HORIZONTAL AND VERTICAL ROLLING WOOD PARTITIONS; WILSON'S HYGIENIC WARDROBES.

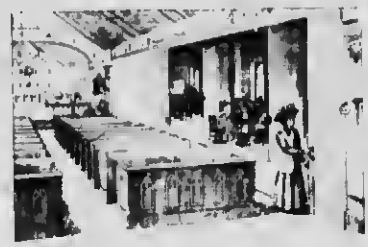
DESCRIPTION. Wilson's Rolling Partitions are adapted for church and school buildings as a means of economizing space in the subdivision of schoolrooms. About thirty thousand churches and schools are fitted with our Rolling Partitions.

WILSON'S HYGIENIC WARDROBES — STYLE B, HORIZONTAL ROLLING.

WILSON'S HYGIENIC WARDROBES. As shown, are made in several styles desirable for schools and institutions. The arrangement shown in the illustration is one plan of ventilating our wardrobes. The air, being drawn into the wardrobe from the room, at the bottom, passes out through the air shaft or flue and can not re-enter the room. This avoids the unpleasant odours of the drying clothing on a wet day. Every wardrobe is equipped with hooks, shelves and racks for the children's convenience.

WILSON'S PATENT ROLLING PARTITIONS. Are constructed of wooden slats that adjust themselves *automatically* to atmospheric changes.

The Horizontal-Rolling Partitions, as shown, *coiling up*, have no limit to the width of openings to be closed. In auditoriums and churches where large openings are to be closed we divide the width into sections by using movable posts.



VERTICAL ROLLING PARTITIONS

HORIZONTAL ROLLING PARTITIONS

The Vertical-Rolling Partitions, as shown, *coiling sideways*, will readily close openings 50 ft. wide without the aid of intermediate parts. Only one inch head room is required above the line of partition or clear opening. No helical springs, wire cords or complicated cog-wheel gears are employed. The operating device is so simple that it can not get out of order.

WILSON'S HYGIENIC WARDROBES — STYLE D, VERTICAL ROLLING.

ADVANTAGES. These rolling partitions are air-tight, soundproof, noiseless and easy in motion. Damaged slats can be replaced in a few minutes. No working parts to get out of order. A blackboard surface can be placed on the opposite side of the roller, when desired for schools and institutions.

PRICES, CATALOGUES AND TESTIMONIALS. Furnished upon request to the New York Office or nearest agent.

For our Special Protective Steel Rolling Doors and Shutters see our advertisement on page 360.
For our Venetian Blinds and Awnings see our advertisement on page 217.

WILLIAM PEACE CO., LIMITED

TORONTO AGENT:
JAMES EVERETT,
140 BEACONSFIELD AVENUE.

BANK OF HAMILTON BUILDING,
HAMILTON, ONT.

AND

OTTAWA AGENT:
GEORGE WILSON,
341 GLOUCESTER STREET.

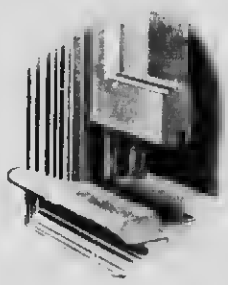
THE WINDOW STRIP & SUPPLY CO., LIMITED

107 UNITY BUILDING, ST. ALEXANDER STREET
MONTREAL, QUE.
MANUFACTURERS.

PRODUCTS. Manufacturers of the PEACE METAL WEATHER STRIP for Windows and Doors, made of Zinc, Brass or Bronze.

ADVANTAGES. The "Peace" Weather Strip is a permanent fixture which, when applied to Windows and Doors, excludes draughts and cold winds, dust and atmospheric filth, cuts off outside noises, tightens loose sash and prevents rattling. It saves the cost of storm sash and trouble of same, and enables the house to be aired and kept healthy, which is almost impossible with storm sash. It provides a means for easy and free sliding of the windows at all times. Sticking is next to impossible.

REINFORCING. The Strip is fashioned with a rib running lengthwise and into which is forced a wooden core, which reinforces the strip and makes it practically indestructible. The reinforcing prevents all chances of the strips becoming bent, which so frequently occurs with other makes of weather strips. This point of merit places it far above any other make of weather strip known and enables us to guarantee all equipments.



APPLICATION. The Weather Strip is fastened into the window casing channel, top, sides and bottom. The rib of the Strip fits into a groove in the sash, thus making a joint very similar to a tongue and groove in the matched lumber. "Peace" Weather Strips can be applied to any and all classes of windows, such as straight, curved or swell windows, and doors. We take the windows as they are found and guarantee the proper installation and working of the Strips.

INSTALLATION. "Peace" Weather Strips are not sold to the Trade, but installed by our own experienced workmen, of whom we have a number in various sections of the country. Estimates on work are submitted by the managers of our Branch Offices.

With our headquarters and factory in Hamilton, Ont., and an efficient staff of workmen, we are enabled to keep in close touch with our patrons, wherever located, by which means we have equipped many thousands of windows and doors.

TESTIMONIALS. When we make the assertion that the "Peace" Metal Weather Strip reduces coal bills from 25 to 40 per cent., we are advancing no mere theory, but a hard proven fact.

We have records in the shape of voluntary testimonial letters from all sections of the country, and our managers of branches will at all times be ready to verify this to your satisfaction.

SUMMARY. The "Peace" Metal Weather Strip proves its usefulness and money saving principles by:
Strengthening and adding life to the window.
Preventing admission of the winter blasts and cold.
Keeping out dust, dirt and annoying outside noises.
The enormous saving of the fuel bills.
Its installation at one-half the cost of storm sash, and no further trouble.
Making the home more comfortable in numberless ways.
Making sashes practically burglar proof, as it is impossible to open sash fasteners from outside without breaking glass.

ESTIMATES. Estimates and samples will be furnished from our nearest Branch Office, or a representative will always be pleased to demonstrate the merits of the Weather Strip with a model on receipt of a card or telephone call from you.

WATSON LIMITED

HEAD OFFICE AND FACTORIES,

BRADFORD, ONT.

PARTITIONS BETWEEN CLASS ROOMS UNDER GALLERY

NOTES ON ROLLING PARTITIONS.

For the above provision is usually made for the roller between the gallery joists and the Partitions are run down pilasters which are scribed to the column and to the wall. Pilasters need not be thicker than 2½ inches. The space required for the rollers is arranged according to the height of Partition. The following table gives space required

Height of Partitions	Ceiling Space Required	Height of Partitions	Ceiling Space Required
7 feet	12 in. x 12 in.	10 feet	11½ in. x 11½ in.
8 feet	12½ in. x 12½ in.	11 feet	11 in. x 14 in.
9 feet	13 in. x 11 in.	12 feet	11½ in. x 11½ in.

For the relative position for ceiling space and pilasters see detail

FOR ROLLING PARTITIONS BETWEEN CLASS ROOMS IN GALLERY

The roller for this Partition usually operates beneath the gallery ceiling; if, however, there is not sufficient headroom at the back of the gallery, the roller is put up between the joist and run down pilaster at column and wall.

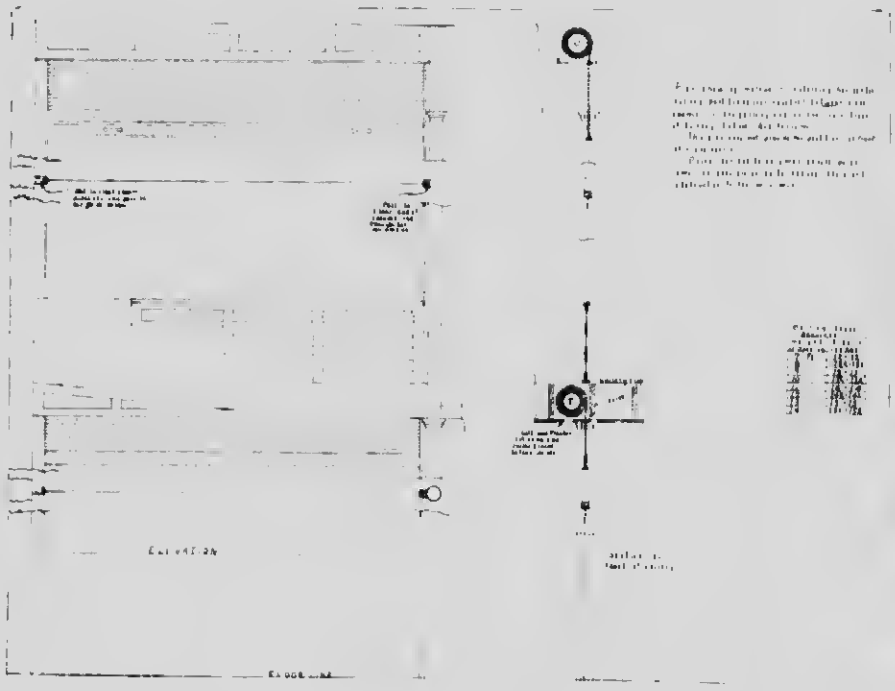
The gallery floor is usually levelled up even with the highest part by means of panel work with cap, so that when the Partition is down the whole opening is closed. In cases where the gallery is very steep, the Partition is usually divided into two sections, the rear section can be pulled down to the floor level at the wall, the front section can be pulled down until it strikes the highest step in that section.

ROLLING PARTITIONS IN FRONT OF CLASS ROOMS

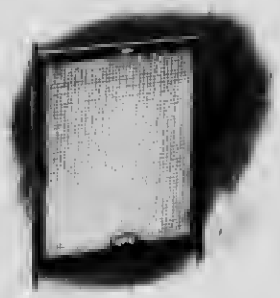
These work most satisfactorily when provision has been made in the cornice of the gallery. Coil space required as above. Partition runs down pilaster on the supporting column.

ROLLING PARTITIONS FOR EXTRA WIDE OPENINGS

For openings over 15 feet Partitions are put in in more than one section divided by movable posts, size of post 2½ in. x 11½ in. By this means any width can be enclosed, and in a few moments, by throwing the Partitions to the top and taking away the posts, the floor can be left entirely clear.



"Watson" Partition with Sash over Roller



"Watson" Rustless Insect Screen

FOR ROLLING PARTITIONS BETWEEN CLASS ROOMS

WHERE FREQUENT ACCESS IS REQUIRED DURING SESSION

In this case the door is put at the side of Partition opening against the wall, and shutting against movable post. The balance of the space above the door is closed in with the ordinary rolling partition. When the floor is desired clear, the Partitions are rolled up and door swung back against the wall and post removed.

VERTICAL PARTITIONS

These are frequently used between class rooms, and rolled into box at the wall. The coil space required as follows:

Width of Partitions	Ceiling Space Required	Width of Partitions	Ceiling Space Required
7 feet	13¾ in. x 13¾ in.	11 feet	16½ in. x 16½ in.
8 feet	14½ in. x 14½ in.	12 feet	17½ in. x 17½ in.
9 feet	15¾ in. x 15¾ in.	13 feet	18¾ in. x 18¾ in.
10 feet	15¾ in. x 15¾ in.	14 feet	18¾ in. x 18¾ in.

Track for the above can either be let in below the floor so as to be flush, or it can be put on the finished floor, making a projection of about ¾ in.

Horizontal Partitions with glass at top are frequently desirable for the sake of light, having glass over the top of roller. For this plan a heavy transom panel is provided at the point where the roller operates. The above transom panel provided for the roller also sustains the weight of the sash. The panel should be firmly fastened at each end to mullions or pilasters down which the Partition runs.

BLACKBOARD SURFACE

Blackboard surface for teaching purposes can be supplied to all of the above Horizontal Partitions. The Blackboard going on the closed side of the Partition or the side opposite the roller.

ROLLER WALL CASE FRONTS

The roller in this case is always concealed behind the frieze, and groove is provided in pilaster or division, so that the curtain can operate until the face strikes the top of the bottom part in case.

BLUE PRINTS COVERING THE ABOVE APPLICATIONS MAILED ON REQUEST

ATHEY COMPANY

MANUFACTURERS OF

CLOTH-LINED METAL WEATHER STRIPS.

HOME OFFICE AND FACTORY:

17 E. TWENTY-THIRD STREET, CHICAGO, ILL.

NEW ENGLAND BRANCH: BOSTON, MASS., 184 SUMMER STREET.

CANADIAN AGENCIES:

CALGARY	CANADIAN EQUIPMENT & SUPPLY CO., 813 Eleventh Ave West.	QUEBEC	RICHARD FRERES, 553 St Valier St
EDMONTON	CANADIAN EQUIPMENT & SUPPLY CO., 751 Ninth St.	TORONTO.	EBERHARD WOOD MFG. CO., 30 Lombard St
HALIFAX	A. M. BELL & CO., 111 Granville St.	VANCOUVER:	E. G. CULLEN, 326 Drake St.
MONTREAL	MONTREAL WOOD MOSAIC FLOORING CO., 730 St Catherine St West	WINNIPEG	A. THOMSON, 170 Bell Ave.

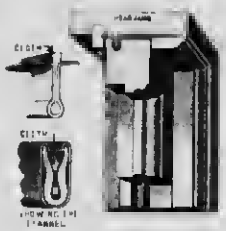


FIG. 1
STRIP AND APPLICATION

Athey

Our flexible contact of cloth to metal gives an absolute protection against both wind and dust not possible with any metal-to-metal or metal-to-wood contact. Saves fuel. Seals the opening.

Sheet metal fireproof windows made wind and dust tight with the ATHEY Cloth-Lined Metal Weather Strip, without friction. Various types to fit any detail. Over 5,000 metal windows now equipped.

The cloth in our channel is not felt, but a three-ply Windsor or billiard table cloth, which will not stretch, and which we chemically treat in a way which makes it impervious to moisture. We guarantee that it will not rot or mildew, nor ent, stretch or tear for years.

Send us your difficult problems, and we will submit drawings and samples of equipment which will make any wood, metal or metal-covered door or window absolutely wind, water and dust tight.

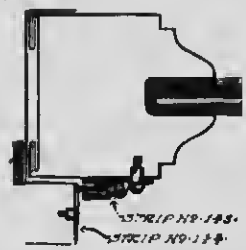


FIG. 4—ONE OF NUMEROUS METHODS OF INSTALLING CLOTH LINED STRIP ON SURFACE OF SHEET METAL FIREPROOF II

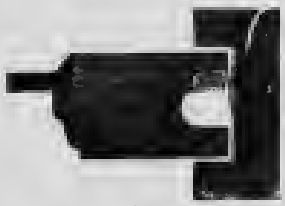


FIG. 2.
CLOTH LINED CHANNEL
No leakage possible

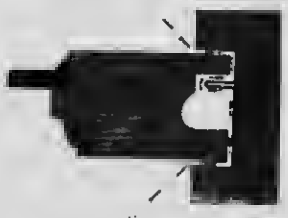


FIG. 3
ORDINARY WEATHER STRIP
Showing leakage without channel

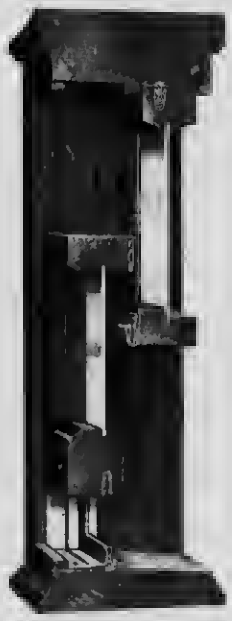


FIG. 5—SECTION OF COMPLETE WINDOW MODEL FITTED THROUGHOUT WITH CLOTH LINED EQUIPMENT
Note cloth-to-metal contact top, bottom, sides and meeting rail No wind or dust leakage, no friction, binding or rattling

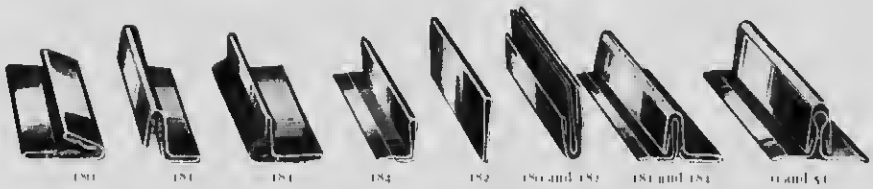


FIG. 6—SOME OF OUR VARIOUS TYPES FOR DOORS AND CASEMENT WINDOWS
Nos. 180 and 182 for top and back edge—Nos. 181 and 182 or Nos. 0 and 50 for hinge edge—Special details for casement buttons

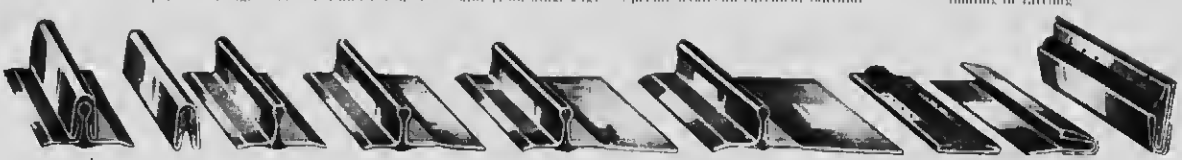


FIG. 7—OUR STANDARD CLOTH LINED EQUIPMENT FOR DOUBLE HUNG SASH
No. 0 channel in sash, all sides in connection with rail 50 to 54 as thickness of sash demands—No. 5 at meeting rail—Cloth to metal contact throughout an absolute protection against wind, dust and laughter—No friction as with metal to metal or metal to wood weather strips—See Figs. 1, 2 and 5—Note half tip on rail reading channel cloth insert in back of rail preventing back leakage

L. H. PETERS, LIMITED

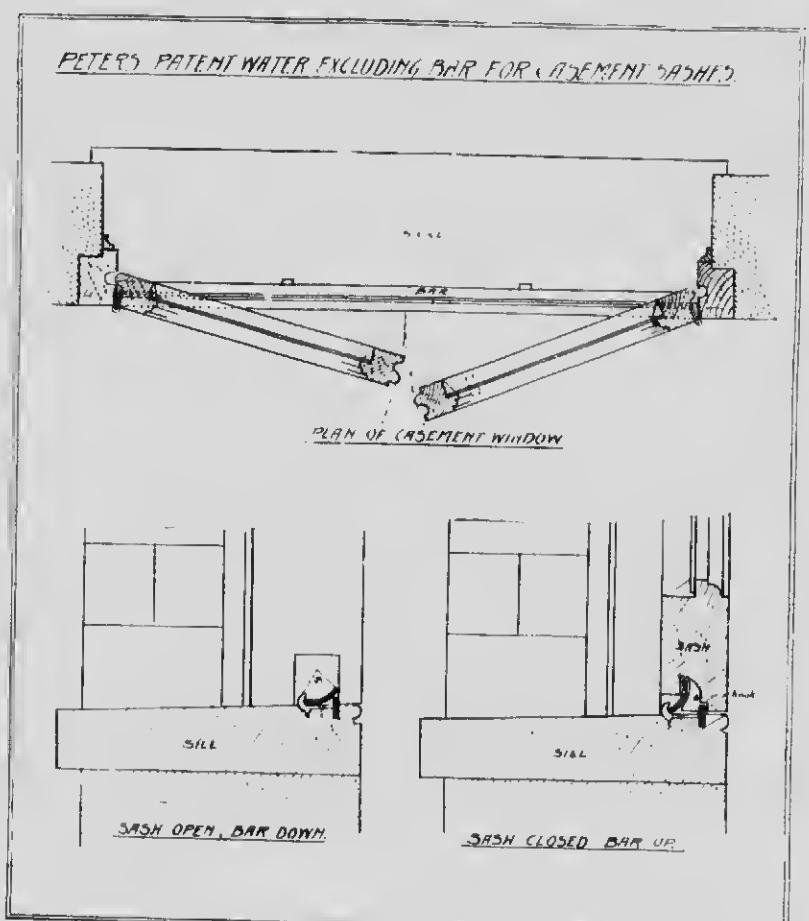
10 St. Angele Street,

QUEBEC, QUE.

PRODUCTS. We are manufacturers of the Peters' Water Excluding Bar, the most perfect excluding bar on the market, for Casement Sashes opening inward.

CONSTRUCTION. Peters' Water Excluding Bar System consists of the ordinary iron sill bar or feather in use to cut sash joint. The water excluding bar proper is formed of a crescent-shape metal bar, which moves up and down when closing or opening sashes. It is held in place by two sockets, set into the frame, and small clips fixed to the sill. The right-side sash is fitted with a special hook, which catches and moves the water excluding bar in position.

The bars are made in Galvanised Iron, Statuary Bronze, Copper or Brass.



EFFICIENCY. The efficiency of this bar is plainly shown by the fact that, when the sashes are closed, the bar rises a full 3-8 of an inch underneath the sash and, therefore, absolutely prevents water from getting in.

ADVANTAGES. This device is very simple in construction, cannot get out of order, will last a lifetime, can be applied to old as well as new sashes, making all joints absolutely weatherproof.

This system is now in use in all kinds of buildings and is giving entire satisfaction.

REFERENCES. The following is a partial list of buildings in which Peters' Water Excluding Bar has been applied to windows:

Christian Brothers' School, King Street, Quebec
Technical School, Boulevard Langelier, Quebec
Villa Maurice St. Foy Road, Quebec
Franciscan Convent, Grande Allee, Quebec
Jacques Cartier Convent, Boulevard Langelier, Quebec
Dry Goods Store for The Carnean Limited, Quebec.
Quebec Central Railway Building, Dalhousie St., Quebec.
Jonquiere Presbytery, Jonquiere, Que
Residence for A. K. Hansen, Maple Avenue, Quebec
Residence for F. W. Ross, Esq., Caenuna, Quebec
Residence for A. J. Price, Esq., Belvedere Road, Quebec
Residence for J. A. Hudon, Esq., Laurier Ave., Quebec
Quebec Bank Building, Montmagny, Quebec
Store for P. G. Rissiere & Co., Dalhousie St., Quebec

THE CANADA ACME METAL WEATHERSTRIP CO., LTD.

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TORONTO, ONT.

AGENCIES
MYERS, PETERS CO.,
305 READ BLDG., ST. ALEXANDER ST., MONTREAL, QUE.

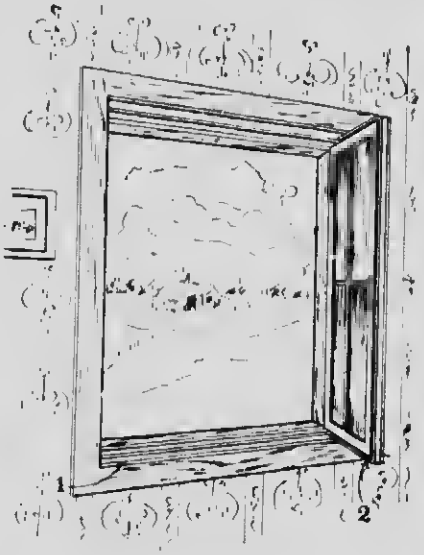
R. S. ROCHE,
188 QUEEN ST., OTTAWA, ONT.
Phone, Queen 5725.

THE SMILEY CO.,
TEGLER BLDG., EDMONTON, ALTA.

AGENCIES
R. A. DE VINE,
PORT ARTHUR AND FORT WILLIAM, ONT.

AGENCIES TO BE OPENED:
HAMILTON AND LONDON, ONT.
WINNIPEG, MAN.
CALGARY, ALTA.
VANCOUVER, B.C.

PRODUCT. We manufacture the celebrated "CANADA ACME" METAL WEATHER STRIP, in styles adaptable for use on windows of every description, including Casement, French and Round Top Windows, also Doors.



INTERLOCKING HOOK STRIP
FOR CASEMENT AND
FRENCH WINDOWS

Illustration by number of the different points of excellence of our Acme Metal Hook Strip

No. 1 Shows a piece of metal strip bent in such a way so as to form a hook. This piece of metal hook is fastened to the jambs of the window.

No. 2 Shows a piece of metal double in thickness extending around the sash, which enters into metal hook No. 1 when the window is closed, making the window absolutely weather, dust and soot proof.

ILLUSTRATIONS BY NUMBERS OF THE DIFFERENT POINTS OF EXCELLENCE OF THE CANADA ACME METAL WEATHER STRIP

No. 1 Shows the edge of metal strip turned at right angles and located the depth of the parting stop in the jamb, to prevent the cold wind, dust or soot from passing between the strip itself and the jamb.

No. 2 Shows a part of the metal strip bent at right angles and doubled in thickness, and forms a tongue that fits into groove cut into edge of window sash.

No. 3 Shows a part of the metal strip extending to the outside stop.

No. 4 Shows the metal tongue, same as No. 2.

No. 5 is a groove cut into the sash to receive metal tongue as shown in Nos. 2 and 4.

No. 6 Shows a piece of flat metal strip of double thickness, so placed as to pass behind strip No. 8.

No. 7 Shows a groove behind metal strip No. 6, to receive metal strip No. 8.

No. 8 Shows a metal strip same as No. 6, and enters groove No. 7 when sash are closed.

No. 9 Shows a groove in sash same as No. 5.

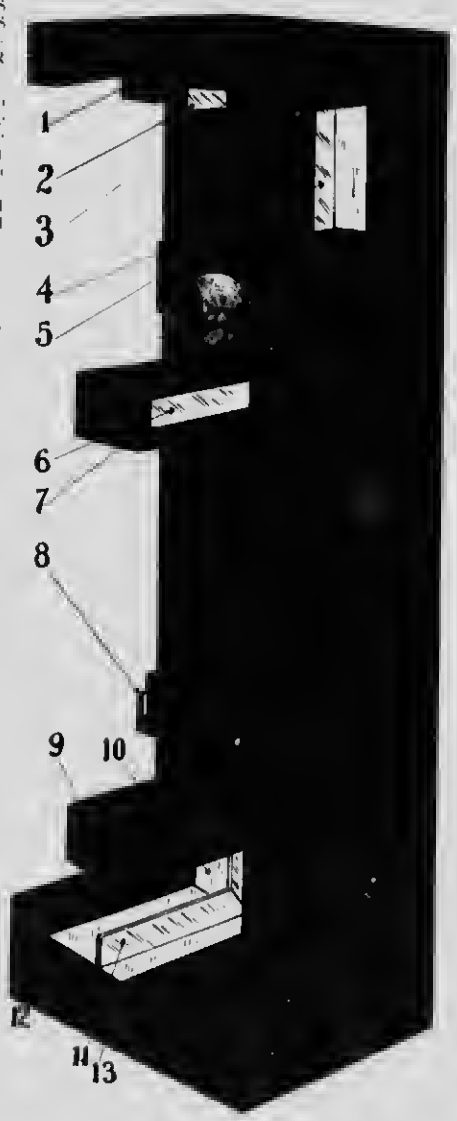
No. 10 Shows the air tight construction of corner joint, by tchseoping the side and bottom tongues of metal strips.

No. 11 Shows the metal tongue, same as Nos. 2 and 4.

No. 12 Shows the inside edge of metal sill strip passing under inside stool.

No. 13 Shows bent edge of metal strip sunk into window sill, which prevents the passing of winds, dirt or soot under metal strip.

Metal tongues as shown at Nos. 2 and 11, when entered into grooves 5 and 9, form a perfect contact, preventing the cold winds, dust and soot entering the building, also preventing the sash from rattling and acting as a deadener of outside noises.



The above cut represents a window frame and sash after being cut through the centre and a half removed, so as to show a sectional view.

ADVANTAGES. The advantages resulting from the use of our Weather Strip may be summed up as follows:

It prevents the entrance of cold winds, dust, soot, etc., and effects a saving in fuel bills of from fifteen to twenty-five per cent. It does away with the rattling of loose windows and makes hard and sticky windows easy to raise and lower. It is an extremely satisfactory substitute for storm sash and doors at about one-half of the cost. Owing to the superior workmanship, it is rendered strong and durable, and will last a lifetime.

INFORMATION AND BOOKLETS. We shall be pleased to send information, booklets, etc., regarding this Weather Strip upon receipt of a card from anyone interested, and solicit enquiries from architects, builders, etc. References and estimates furnished.

The 20th Century Substitute for Storm Sash and Doors. Most complete and effective of all Metal Weather Strips. Our Motto: "Acme." Work Guaranteed.

THE CANADIAN OFFICE & SCHOOL FURNITURE CO., LIMITED

PRESTON, ONT.

MANUFACTURERS OF

ASSEMBLY ROOM FURNITURE. We are prepared to supply at short notice portable folding chairs entirely of wood in different grades and designs.

BANK AND OFFICE FIXTURES. We have made a specialty of the manufacture of bank and office equipments, including counters, partitions, metal railings and marble work, and of all fixed and loose furniture pertaining thereto.

Of the twenty-eight hundred banking offices in the Dominion of Canada, we have fitted up no less a number than two thousand.

CHURCH FURNITURE. We will be pleased to quote attractive prices on church work, including pews, altars and platform furniture generally.

COURT HOUSE AND CITY HALL FURNITURE. We contract for the complete equipment of this class of building, covering desks, chairs, counters, vault fittings in fact, complete outfits. The Court Houses at Woodstock, Ont., and St. Thomas, Ont., show the class of work we do, as also the Regina City Hall, lately finished.

HOTEL AND CLUB FURNITURE. As a specimen of our work in this line we may point to the bar in the King Edward Hotel, Toronto, which was made by us.

INTERIOR HARDWOOD TRIM. We will be pleased to quote figures for all hardwood work of the higher grades for the better class of residences and public buildings.

LODGE FURNITURE. We have done a large amount of work in this line, and are at present preparing a new and elaborate catalogue showing graduated designs from the least expensive to the most elaborate.

OPERA CHAIRS. A large majority of the Opera Houses in Canada are seated with our chairs. Our list includes the Royal Alexandra, Toronto, chairs for which were made from special designs. In addition to the better class of seating, we manufacture a line of cheaper chairs which are being largely used for picture shows.

OFFICE DESKS AND COMMERCIAL FURNITURE. We were the pioneers in this line and carry a full stock of standard goods, including roll-top desks, flat top desks, typewriter desks, standing desks, wardrobes, telephone boxes, chairs and settees, in all woods and finishes.

STORE FITTINGS AND FURNITURE. We solicit the privilege of figuring on requirements in this line. We can supply counters, wall cases, show cases and all loose furniture.

SUNDAY SCHOOL SEATING. We can furnish everything necessary for a complete equipment and can especially recommend our settee seating.

SCHOOL FURNITURE. This is one of our largest lines, and the fact that we hold contracts for the supply of our furniture for most of the cities in Canada speaks for itself. We also fit up laboratories and science departments.

SCHOOL DESK (ADJUSTABLE)

We issue separate catalogues for Church Furniture, Lodge Furniture, Opera Chairs, Office Desks, Sunday School Seating and School Furniture, which we will be pleased to submit on application.

Our great and varied experience in above lines permits us to intelligently and faithfully interpret Architects' ideas and rough suggestions, and it is our aim to carry out orders with which we are entrusted in the best and most up-to-date manner.

OPERA CHAIR

RHODES, CURRY COMPANY, LIMITED

CONTRACTORS AND MANUFACTURERS OF BUILDING MATERIALS,

AMHERST, N.S.

BRANCHES AT
HALIFAX, SYDNEY, AND
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PRODUCTS — BANK, CHURCH, STORE AND OFFICE FITTINGS; DOORS, SASHES, DIMENSION TIMBER, DRESSED LUMBER, LATHS, SHINGLES, CLAPBOARDS, HARDWOOD FLOORING, WAINSCOTING, STAIR WORK; CEMENT, LIME, PLASTER, BRICKS; CAST-IRON COLUMNS, SASH WEIGHTS, CRESTING, etc., and building materials generally.

FOREIGN AND DOMESTIC WOODS. — From 4,000,000 to 8,000,000 feet carried in stock, including all varieties.

DRYING CAPACITY. — Four large dry-houses built on latest scientific plans. Capacity 50,000 feet per day.

MANUFACTURING PLANTS AT AMHERST, SYDNEY, AND NEW GLASGOW. — Amherst plant employs 160 hands. Largest capacity in the Maritime Provinces. Expert workmen. Prompt shipment. Thirty-seven years' experience supplying above materials to all leading Banks, Railways, Government Works, Churches, etc.

Sydney plant employs 50 hands, manufacturing same lines as above.

BUILDING DEPARTMENT. — During thirty-seven years' experience in contracting and building have erected many of the most important buildings in the Maritime Provinces.

STRUCTURAL STEEL PLANT. — To facilitate our Building Construction Department, we found the necessity of adding this Plant to our Works in year 1913, and now fabricate our own Structural Steel, and are open for enquiries in this line of business.

THE BERLIN INTERIOR HARDWOOD CO., LIMITED

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PRODUCTS. We manufacture and contract for the complete equipment of BANK AND OFFICE FITTINGS, including MARBLE AND METAL WORK, DESKS AND FILING DEVICES, WARDROBES, TELEPHONE BOOTHS, COUNTERS, Etc.

FURNITURE AND FITTINGS for court houses, city halls, and all public buildings requiring high-grade INTERIOR HARDWOOD FITTINGS.

OPERA CHAIR

CHURCH SEATING. Both straight and circular, solid and built-up. Altars, pulpits, etc.

ASSEMBLY FOLDING CHAIRS. For Sunday school, assembly hall and banquet hall seating. Made either single or in sections.

OPERA CHAIRS. Made of both steel and cast iron, upholstered, or built-up seats and backs.

OFFICE DESKS

ASSEMBLY CHAIRS

LODGE FURNITURE. We have a wide range of designs to choose from the least expensive to the most elaborate.

REVOLVING DOORS. We manufacture the American Standard Revolving Doors. If interested, write for catalogue illustrating the various designs and giving full information as to their construction.

REVOLVING DOORS

HOTEL AND CLUB FURNITURE. Bar fittings, counters, etc.

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STORE FITTINGS. We manufacture fittings for drug, jewelry, dry goods, grocery, and all kinds of store requirements, such as counters, show cases, silent salesmen, shelving, store fronts, etc.

OFFICE INTERIORS

GUARANTEE. We guarantee our work to be right in construction and material, and carry on hand at all times all foreign and domestic kiln dried materials usually required in our line. We occupy over 100,000 square feet of floor space, with all modern and many special machines. We are located in the banner furniture town of Canada, where experienced and competent help is employed, and are therefore in a position to give satisfaction and prompt delivery.

THE KNIGHT BROTHERS COMPANY, LIMITED

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SASKATCHEWAN SUPPLY CO., SASKATOON, SASK.

P. W. T. ROSS, TORONTO, ONT.

HEAD OFFICE AND FACTORY:
BURKS FALLS, - - ONTARIO,

WAREHOUSE: COCHRANE, ONT.
" COBALT, ONT.

MILLS.

BURKS FALLS.

KATRINE.

LOON LAKE.

STIRLING FALLS.

"ECLIPSE BRAND" VENEERED DOORS. We have made a special study of VENEERED DOORS, and recognize no peers and few equals to the "Eclipse Brand." Furnished in mahogany, walnut, quartered oak, selected birch, red birch, white birch, etc., in stock patterns or to architect's designs.

"ECLIPSE BRAND" STAIRS. Our facilities for handling all classes of high-grade stair work are up-to-date in every respect and backed by 25 years' experience. All materials used go through our dry kilns, which have a capacity of 120,000 feet. Our special expert workmen will lay out stairs complete from architect's details or from plans and measurements, and send all work framed and fitted ready to set in place.

"ECLIPSE BRAND" TURNED COLUMNS. After years of study and experience, we find that the columns which give the best results are built up of 6, 8, or 10 staves, glued together with our special lock joint, with bases and capitals in turned, carved or compo work, as required.

"ECLIPSE BRAND" HARDWOOD TRIM. When the specification calls for hardwood trim, it naturally follows that a little extra quality is desired, and this is just what gives the style and class so much sought after in the better grade of buildings, whether large or small. This extra quality of finish and machine work is always assured by specifying "Eclipse Brand." We are prepared to supply trim for any building throughout in any of the better grades of wood, including quarter-cut oak, curly birch, mahogany, walnut, red birch, white birch, bird's-eye maple, ash, whitewood, or Georgia pine. Buildings recently supplied by us include:—

The Royal Bank, Calgary, Alta.
The Royal Bank, Medicine Hat, Alta
The Royal Bank, Lacombe, Alta
The Rogers Building, Vancouver, B.C.
The Spencer Building, Vancouver, B.C.
The Bower Building, Vancouver, B.C.
The Royal Bank, Edmonton, Alta
The Ramsay School, Calgary, Alta
The Y.M.C.A. Building, Saskatoon, Sask.
The Cairns Building, Saskatoon, Sask.
Residence of Wm. Hopkins, Saskatoon, Sask.
The Royal Bank, Swift Current, Sask
The Royal Bank, North Battleford, Sask.
The Royal Bank, Moose Jaw, Sask
The Sterling Methodist Church, Winnipeg, Man.
Residence of V. C. Brown, Esq., Winnipeg, Man
Residence of Henry Taylor, St. Catharines, Ont.
Residence of Wm. Chaplin, St. Catharines, Ont
Security Loan and Savings Buildings, St. Catharines, Ont
The High School, North Bay, Ont.
The High School, St. Thomas, Ont
Residence of Col. F. D. Mercer, Toronto, Ont

"ECLIPSE BRAND" PANELLED DADOES AND WAINSCOTING. To stand the varying strains and atmospheric conditions to which this class of work is exposed, it requires the highest grade of materials and best of workmanship. We have the best-equipped machinery for doing all kinds of fine work on glued-up cores; together with solid, three ply, or five-ply panels.

"ECLIPSE BRAND" OFFICE FITTINGS AND CABINET WORK. We manufacture Store Fittings, Silent Salesmen, Hotel Furniture, Bank Fittings, Mantels, Wardrobes, China Closets, Buffets, and High-Class Cabinet Work of all descriptions, from architect's blueprints and details.

"ECLIPSE BRAND" HARDWOOD FLOORING. These goods come in the regular woods, maple, birch and oak, and can be made to order in any of the finer woods on short notice. "Eclipse Brand" represents all that is good in Hardwood Flooring, and comes in all the standard widths, thicknesses and grades adopted by the Hardwood Flooring Association.

PRIMING AND GLAZING. We make a specialty of priming and glazing sash and doors, and supply plain, stained, leaded, and plate glass to order.

FILLING AND STAINING. In order to insure to the architect, contractor, and owner a better finish to all classes of hardwood and veneered work, we have established an up-to-date staining and filling plant. All woods are more or less affected by atmospheric conditions, and unless given a first or priming coat at the same temperature as the shop in which it is worked, the best results cannot be obtained. We strongly recommend that all mill work have one coat of finish before leaving the works.

ESTIMATES FURNISHED. Send us your Plans, Specifications and Bills of Quantities, and we will promptly furnish estimate of material F.O.B. your station.

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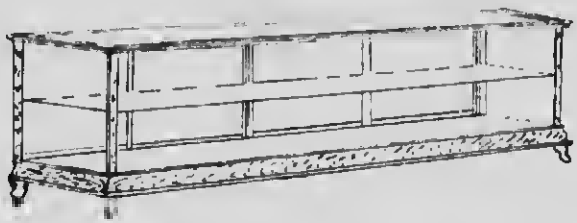
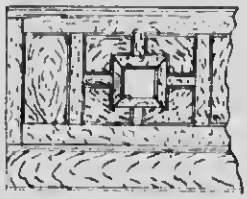
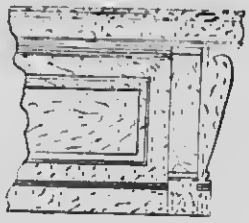
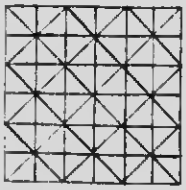
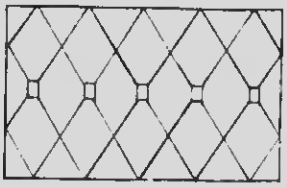
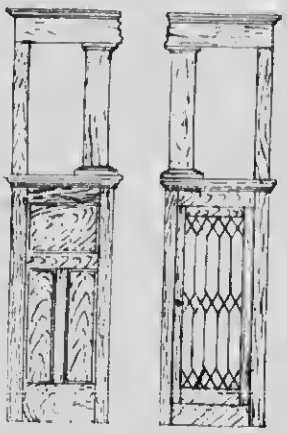
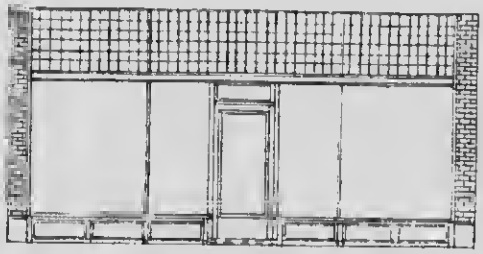
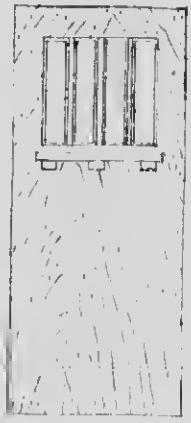
REGINA, SASK. SASKATOON, SASK.

YARDS AT
RED DEER AND FT. SASKATCHEWAN.

PRODUCTS. EVERYTHING IN MILL WORK, ART GLASS, MIRRORS, BEVEL PLATES, FANCY SHEET AND PLATE GLASS.

INFORMATION. Call on us or write us when you are needing anything in the building line.

THE BURTON & BALDWIN MFG. CO., LIMITED

HAMILTON, ONT

A Car of Lumber Entering Dry Kiln

PRODUCTS. CABINET WORK of all kinds, BANK AND STORE FIXTURES, SHOWCASES, INTERIOR HARDWOOD TRIM AND FINISH for Public Buildings, Residences, etc.

PLANT. We have a modern plant and the best of facilities, including up-to-date Dry Kiln scientifically operated.

TRIAL ORDERS SOLICITED. If YOU have had trouble with work installed not properly seasoned, give us a trial.

NOTE. We make no goods for stock, all our resources being devoted to executing YOUR work exactly according to YOUR plans and specifications.

YOUR interests are our interests. We want to please YOU. With us the SERVICE we will give you is quite as important as the job itself.

We have the facilities, the plant, the organization, the experience and the determination to deliver your orders on time and to your entire satisfaction.

DELIVERY. Before we submit figures on a job, we want to know what delivery will be required. If we cannot meet that delivery, we will tell you so frankly.

REFERENCES.

	Architects.
BANKS	
Bank of Hamilton, Hamilton	Mills & Hutton.
Metropolitan Bank, Hamilton	Watt & Blackwell
Bank of Montreal, Hull, Que	Peden & McLaren, Montreal Que
DEPT STORE.	
Stanley Mills & Co., Ltd., Hamilton	Mills and Hutton
HOTELS	
King George Hotel, Hamilton	
Revere House, Hamilton	
Armory Hotel, Hamilton	
TERMINAL STATION	
Dom Power and Transmission Co., Hamilton	Mills and Hutton

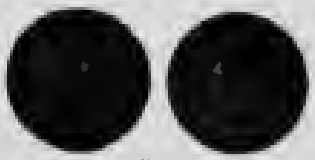
	Architects.
OFFICE BUILDINGS	
International Harvester Co., Hamilton	
Goodyear Tire and Rubber Co., Toronto	Hewen & Halstrick, Chicago, Ill
J. R. Moodie & Sons, Hamilton	Stewart & Witton
RESIDENCES	
J. R. Moodie, Hamilton	Mills and Hutton
H. B. Witton Hamilton	Stewart & Witton
W. J. Verity, Brantford	Stewart & Witton
TECHNICAL SCHOOLS	
Board of Education, Hamilton	A. W. Peene
Public School Board, Winnipeg.	

CANADIAN "PYROFUGONT" FLOORING CO., LIMITED

BERLIN, ONTARIO

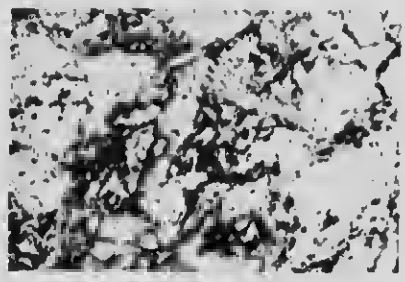
MUNICH, GERMANY; LONDON, ENGLAND; BASLE, SWITZERLAND; BRUSSELS, BELGIUM; MOSKAU, RUSSIA.

Order of Honour. Highest Awards World's Exhibition, Brussels, 1910



Gold Medal. Highest Awards Exhibition for Hygiene, Dresden, 1911

PRODUCT. We are manufacturers of "PYROFUGONT," the only FLOOR containing asbestos fibre.



MOTTLED FLOORING.

SPECIFICATIONS. "Pyrofugont" Floors are laid in two layers – a sub-floor $\frac{3}{8}$ in. thick and a top floor $\frac{3}{8}$ in thick.

"Pyrofugont" if laid on concrete: Concrete must be laid level with rough surface, $\frac{3}{4}$ in. below finished floor level.

"Pyrofugont" if laid on wood: Rough Board flooring must be well nailed, need not be tongued and grooved, but boards are best to be spaced $\frac{1}{16}$ in.

"Pyrofugont" Base, with sanitary cove supplied to any height. Plaster must be left off to height of base.

"Pyrofugont" Wainscoting: Condition same as base.

SPECIAL SCHOOL FLOORING.

ADAPTABILITY. "Pyrofugont" can be laid in any plain colour, as well as in any combination of colours.

It is supplied in three grades: Factory Floor, School Floor, Office or Residence Floor.

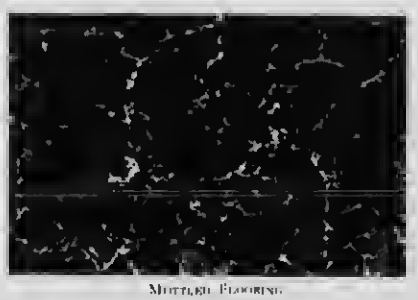
Factory and School Floors are trowel finished and waxed; Residence and all Mottled Floors, hand scraped and waxed.

RESIDENCE FLOORING

FIREPROOFING QUALITIES. "Pyrofugont" Flooring and Wainscoting perfectly withstood the fire in the recent Toronto Woodbine Hotel disaster. Write for photographs.

CONTRACTS EXECUTED AND AWARDED.

Building	Architect
St. Augustine Seminary	Arthur W. Holmes.
Toronto Western Hospital	E. J. Lennox
Queen Alexandra Sanitarium, London, Ont.	
Court House, London	McBride & Gilbert
Loretto Academy	Neil G. Beggs
Post Offices, Preston and Elmira	D. Ewart
Merchants Bank, Preston	
Y.W.C.A., Hamilton	Mills & Hutton.
Bank of Ottawa, Ottawa	
Woodbine Hotel	E. H. Herbert.



MOTTLED FLOORING

THE MASTER BUILDERS COMPANY

CONCRETE FLOOR HARDNER.

MAIN OFFICE AND WORKS
CLEVELAND, OHIO.

CANADIAN OFFICES AND WAREHOUSES
MONTREAL. TORONTO, WINNIPEG.

REPRESENTATIVES

HALIFAX, N S	The General Contractors Supply Co Ltd
St JOHN, N B	Estey & Co
OTTAWA, ONT	T S Kirby Co Ltd
FORT WILLIAM & PORT ARTHUR	The Twin City Sand Co Ltd
REGINA, SASK	Brown & Chapman
MOOSE JAW, SASK	Sask Glass & Supply Co, Ltd
SASKATOON, SASK	Mackenzie & Thayer, Ltd
PRINCE ALBERT, SASK	Bowron Supply Co, Ltd
EDMONTON, ALTA	W P Pouchet
CALGARY, ALTA	Imperial Supply Co, Ltd
VANCOUVER & VICTORIA	Wm N O'Neil & Co Ltd
QUEBEC	Primeau & Co Ltd
SAULT STE MARIE	T H MacGibbon Co

Master Builders Method

PRODUCT AND SERVICE

MASTER BUILDERS CONCRETE HARDNER, used in accordance with Master Builders Method for making wearproof, dustproof and waterproof concrete floors

PATENTS.

Master Builders Method Patents granted as follows: American Patent, Dec. 26, 1911; Canadian Patent, April 23, 1912; English Patent, Oct. 10, 1912.

ADVANTAGES

To have concrete floors that will not dust, crumble nor disintegrate, the worst fault of concrete—its porosity—must first be overcome. Porosity makes concrete floors fragile and dusty, shortens their useful life, and leads to patching and renewals. To eliminate this porosity in concrete floors, they must be made right and laid right. Master Builders Method has proved, under many varying conditions, that it best performs this vital work.

Master Builders Method provides for the use of Master Builders Concrete Hardner, a finely-divided mineral substance, which, when properly incorporated in concrete floor topping, gives that floor high tensile and compressive strength, and enables it to withstand abrasion to an exceptional degree. Master Builders Concrete Hardner not only treats the surface, but is mixed right into the topping of the floor, binding, hardening and strengthening it, and making it exceptionally durable.

SERVICE

Master Builders Method also includes, when requested, the personal presence of a Master Builders Service Man on the job, when the work starts. This Service Man's duty is to instruct the contractor just how our "Standard Specifications" are carried out. He remains with the contractor until the latter is thoroughly familiar with Master Builders Method and can proceed without further assistance.

Master Builders Method is the original and standard method for making concrete floors that will not dust nor absorb moisture, and that will resist the hardest kind of wear. Master Builders Method is scientific; it is the result of years of careful experimenting by men who are experts in concrete floor work. Wherever a concrete floor can be used, Master Builders Method Concrete Floors will best answer all requirements. They are giving ideal service to-day in hundreds of important buildings of every type and description, throughout Canada, the United States and Europe.

INSTALLATIONS

HALIFAX
Nova Scotia Technical College
Moirs Limited Stables
Annex Building, Dalhousie University
Work on Union Cattle Station.

ST JOHN, N B
Atlantic Sugar Refinery Co
Bank of British North America
Maritime Motor Co

QUEBEC, QUE.
Holt, Renfrew & Co.
Dominion Fish & Fruit Co

MONTREAL, QUE.
Dominion Textile Co—Colonial Branch
Molsons Brewery and Stable
Canada Bread Co

MONTREAL QUE—Con
Alexander Pier Bridge
Imperial Tobacco Co Ltd

TORONTO, ONT
The City Dairy Co Ltd
The Canada Bread Co Ltd
The Consumers Gas Co
The Cowan Co
National Drug & Chemical Co
The T Eaton Co

WINNIPEG, MAN.
The Smart Woods Building
Fort Garry Hotel Driveways

REGINA SASK
The Canada Life Building
The Telephone Exchange

MOOSE JAW SASK
City Electrical Power Plant
The Hugh Building
Sask Creamery Building.

CALGARY ALTA
C P R Hotel Palliser
Hudsons Bay Co Building
Calgary Brewing Co

VANCOUVER B C
The C P R Hotel, Vancouver
Canadian Fairbanks Morse, Warehouse
B C Electric Railway Co's Power House

VICTORIA, B C
C P R Hotel Empress
Scott & Pelton, Warehouse

CONTINUED ON NEXT PAGE

STANDARD SPECIFICATIONS FOR MAKING MASTER BUILDERS METHOD WEARPROOF, DUSTPROOF AND WATERPROOF CONCRETE FLOORS

Master Builders Method is a formula for making concrete floors Wearproof, Dustproof and Waterproof. Its adoption by leading Railroads, Packing Houses, Breweries, Printing Plants, Bakeries, etc., and installations by them under many varying conditions, has proved its efficiency and completeness.

Master Builders Concrete Hardner, the material used in connection with Master Builders Method, is a mineral substance, manufactured uniformly at all times. There is absolutely nothing about Master Builders Concrete Hardner that in any way changes the nature of concrete. It is a hardner, binder and filler.

The Master Builders Company assumes no responsibility whatsoever for any structural defects in concrete floors, cracks, poor workmanship, poor materials or damage of any kind caused by weather conditions, abuse or premature use, in Master Builders Method Floors.

The Master Builders Company maintains a Service Department, including a staff of trained Service Men, who upon written request will explain and demonstrate how our Method should be carried out. No charge whatsoever is made for this work.

SPECIFICATION "A" Recommended only for Making Dustproof Concrete Floors in Hospitals, Power Houses, Office Buildings, Public Buildings, etc.

BONDING. If Master Builders Binder is specified, see specification for bonding below.

APPLICATION OF TOPPING. The topping, thickness at least full ½ in., which shall consist of a one part tested Portland Cement to two parts coarse, gritty, clean sand, mix 1 : 2½, shall at no time be made sloppy. Lay and straight edge the topping to a true and even surface. The topping shall then be well floated with wooden floats, to close all coats and hollows.

THE FINISH. Then a dry mixture of one (1) part Master Builders Concrete Hardner and one (1) part tested Portland Cement (by weight), mixed to an even colour, shall be sprinkled evenly over the surface. This shall be floated in thoroughly and troweled.

A second troweling shall be given the surface when it has set sufficiently to finish hard and smooth.

Under no circumstances shall the Finish be applied when there is any sign of surplus water on the floated surface.

SAFEGUARDING THE FLOOR. After the topping has set up, the contractor shall cover it with a uniform layer of soft wood sawdust, shavings, or other suitable covering. This covering must not be applied until experiment shows surface hard enough to prevent covering from scratching or injuring the finish. Surface shall be kept wet for at least five days. Floors, if protected as above, will be ready for light traffic in a week, and for heavy traffic in three weeks, under favourable weather conditions.

MATERIAL REQUIRED. Specification "A" requires approximately 15 lbs. Master Builders Concrete Hardner per square (100 sq. ft.) *without Binder.*

Specification "B" requires approximately 20 lbs. Master Builders Concrete Hardner per square (100 sq. ft.) *with Binder.*

SPECIFICATION "B" Recommended for Making Wearproof, Dustproof and Waterproof Concrete Floors Subjected to Heavy Service.

THICKNESS OF TOPPING. The Topping shall be at least a full three-quarters (¾) inch of an inch in thickness. If floor is very uneven, the contractor shall bring the floor slab to the necessary level to take a uniform ¾ in. topping, installed as follows:

BONDING. If Master Builders Binder is specified, see specification for bonding below.

TOPPING (MEASURE BY VOLUME)

1 part tested Portland Cement
2 parts clean, coarse, gritty Sand
5 lbs. Master Builders Concrete Hardner to every bag of Cement.

OR

1 part tested Portland Cement
1 part ⅜ in. crushed Granite, free from dust
1 part clean, coarse, gritty Sand
5 lbs. Master Builders Concrete Hardner to every bag of Cement.

Thoroughly mix until uniform in colour, showing no streaks or patches of the constituents. Add sufficient water to saturate the mixture.

APPLICATION OF TOPPING. Lay and straight edge the topping to a true and even surface. The topping shall then be well floated with wooden floats to close all coats and hollows.

THE FINISH. Then a dry mixture of one (1) part Master Builders Concrete Hardner and one (1) part of tested Portland Cement (by weight), mixed to an even colour, shall be sprinkled evenly over the surface. This shall be floated in thoroughly and troweled. A second troweling shall be given the surface when it has set sufficiently to finish hard and smooth.

Under no circumstances shall the Finish be applied when there is any sign of surplus water on the floated surface.

SAFEGUARDING THE FLOOR. After the topping has set up, the contractor shall cover it with a uniform layer of soft wood sawdust, shavings or other suitable covering. This covering must not be applied until experiment shows surface hard enough to prevent covering from scratching or injuring the finish. Surface shall be kept wet for at least five days. Floors, if protected as above, will be ready for light traffic in a week and for heavy traffic in three weeks, under favourable weather conditions.

MATERIAL REQUIRED. Specification "B" requires approximately 20 lbs. Master Builders Concrete Hardner per square (100 sq. ft.) *without Binder.*

Specification "B" requires approximately 35 lbs. Master Builders Concrete Hardner per square (100 sq. ft.) *with Binder.*

BONDING. If Master Builders Binder is specified:

We recommend that before the floor concrete is thoroughly set, the surface be thoroughly roughened by the use of a steel rake or stiff fibre brush.

Under no circumstances shall topping be laid over concrete surface covered with a coating of scale or other foreign substance. Contractor shall remove all scale, loose particles and foreign substances.

When base is smooth or does not present a sufficiently rough surface on which to bond, it shall be chipped and roughened. If floor is pickled, pick marks must not be more than three (3) inches apart in any direction.

Grease or oil must be removed by scrubbing surface, day before topping is laid, with Muriatic Acid and Water, proportioned one to two (1 : 2). Acid to be removed by washing with fresh water after all action has ceased.

Two hours before operations begin, the surface shall be soaked with fresh water.

Then the surface shall be flushed with a Bonding Coat, consisting of one (1) part Master Builders Concrete Hardner and one and one-half (1½) parts tested Portland Cement (by weight), which has been thoroughly mixed to a uniform colour. This shall be thoroughly spread on the surface until the abutting edges of the old concrete.

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

TORONTO MONTREAL. WINNIPEG. VANCOUVER.

WATERPROOFING AND MASTIC MATERIALS.

PRODUCTS AND SERVICES.

J-M ASPHALT WATERPROOFING CEMENT; J-M ASPHALT SATURATED FABRIC; J-M WATERPROOFING ASBESTOS FELT AND J-M ASPHALT MASTIC.

Also, J-M LIQUID WATERPROOF COATING, J-M CONCRETE PRIMER; J-M CUT STONE BACKING; J-M PLASTER BOND, J-M ASPHALT FLUX, MINERAL AGGREGATE, Etc.

For complete list of J-M Building Materials, see our catalogue in Roofing Section.

We are in position to contract for furnishing and applying materials for all kinds of waterproofing and mastic work.

We have a thoroughly equipped and well-organized Engineering Department at each branch, all under the direction of our chief engineer and his staff, which will be glad to co-operate with you or your engineer handling waterproofing work of every nature.

J-M WATERPROOFING MATERIALS

Our waterproofing products have as a basis Gilsonite, a mineral rubber found in extensive deposits in Utah, and the purest form of asphalt. By our method of making combinations and by our process of conversion, it is rendered very ductile and wonderfully adhesive, and its cementitious qualities and other general characteristics make it perfectly adaptable to withstand peculiar conditions of service to which it becomes subjected.

J-M Asphalt Waterproofing Cement. A bituminous preparation, 99.5 per cent. pure, containing no organic, vegetable, or other matter that will disintegrate or decay. Is superior to ordinary asphaltic compounds, because of the raw material used, the method of preparation, and its great purity, proof against the action of acid, alkali, brine and water; and also due to its being but slightly affected by a wide range of temperature.

Between melting and brittle points it has a range of 200 deg. Fahr., as compared with 40 degrees for coal-tar products and 80 degrees for ordinary asphalts. The material is heated in suitable boilers to a temperature of 400 deg. Fahr., and mopped on while hot. For estimating, figure that one ton of the Waterproofing Cement will cover 3,000 square feet of surface, ¼-inch thick.

J-M Asphalt Saturated Fabric. Composed of an especially strong, loosely woven fabric, thoroughly impregnated with our Waterproofing Cement, and used in building up a waterproof membrane in as many plies as are required to meet conditions. Being an open-mesh material, the Waterproofing Cement, which is mopped on hot, thoroughly saturates cements and bonds together the plies of reinforcements, making a waterproof membrane of such great strength and elasticity that it will remain intact and bridge over any ordinary cracks or openings which may develop in concrete or other construction. The advantage of this method over a material which is introduced into the concrete is plainly seen, as the incorporated material naturally becomes part of the mass and fails with it.

J-M Waterproofing Asbestos Felt. Made of pure asbestos fibre, thoroughly impregnated with pure asphalt. Contains nothing to decay or deteriorate, consequently will last indefinitely. It forms a plastic, bituminized stone sheet, and is the only all-mineral felt made; therefore, the only one which is forever acid, mould, decay and water proof. Used in same manner as saturated fabric, in connection with J-M Waterproofing Cement.

J-M ASPHALT MASTIC FLOORING.

Unlike our waterproofing products, the base of all J-M Mastic is genuine Trinidad Lake Asphalt. By reason of its remarkable ductility, toughness, strength and enduring qualities, this substance is peculiarly adapted for the work it is called upon to perform in floor use under various conditions.

J-M Asphalt Mastic Flooring provides a surface that is waterproof and at the same time practically wearproof under ordinary service conditions. Also, unaffected by acids, alkali and brine.

Absolutely sanitary, as it can be quickly and thoroughly cleaned by simple process of flushing, after which it dries out immediately

Will not originate dust, a point of vital importance in establishments where it is imperative to keep machinery and goods free from dust

The flooring is unequalled for factory and warehouse use, even under the heaviest trucking conditions; and, on account of its noiseless character, is a boon in plants where there is considerable trucking. Another feature in its favour is its peculiar holding quality, which prevents slipping.

J-M Asphalt Mastic Flooring can be made in any consistency between extreme hardness and softness, and, while always dense, possesses a certain amount of resiliency. As it does not cause footsoreness and fatigue, like concrete and other non-yielding floor surfaces, it adds greatly to efficiency as well as to comfort of employees of machine shops, factories and other industries, who are compelled to stand while at work. Furthermore, being damp proof, it is an efficient protection against rheumatism and other ailments common to damp conditions.

J-M Asphalt Mastic Flooring is easily laid and easily repaired, if changes in the floor surface are made necessary at any time. It adds very little to the dead load, as the standard thickness of 1½ inches weighs only 18 lbs. to the square foot, in place. This thickness is sufficient for ordinary trucking requirements, but can be varied to meet conditions, ranging from 1 inch for laboratories, where the requirements are very light, to 3 inches in thickness for loading docks, where the requirements are correspondingly severe.

Can be laid over any foundation which is firm and stable, and can be applied over wood, brick, concrete or tile already in place.

ADAPTABILITY.

J-M Asphalt Mastic Flooring is perfectly adapted for use in nearly all classes of construction. In fact, its scope is almost without limit. It is superior to wood, concrete, brick, tile, slate or composition floors, and may be substituted for floors of those materials to excellent advantage

CONTINUED ON NEXT PAGE

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

TORONTO. MONTREAL. WINNIPEG. VANCOUVER.

CORK TILE AND AKOUSTIKOS FELT.

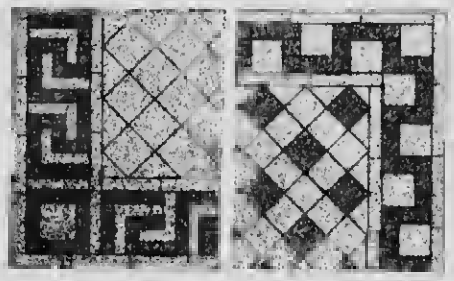
PRODUCTS AND SERVICES.

J-M PURE CORK FLOOR TILE, J-M AKOUSTIKOS FELT for Correction of Acoustics, Defective Acoustical Conditions Corrected.

For complete list of J-M Building Materials, see our catalogue in Roofing Section.

J-M PURE CORK FLOOR TILE.

An ideal flooring for banks, libraries, hospitals, churches, schools, clubs, residences, and many other types of buildings. It is also used on stairways, ramps, decks and saloon floors of yachts and steamers, and in restaurants and other places where it is essential to have a flooring that is not slippery.



J-M PURE CORK FLOOR TILE

The wearing surface of J-M Pure Cork Tile is made of clear, selected cork shavings, while the body is of a coarser granulation of same material. Cork for each individual tile is placed in a closed steel mould and compressed to a small fraction of its original volume under tremendous hydraulic pressure. During this process the cork is heated to a temperature that liquefies the natural gum and binds the particles into a homogeneous mass. The result is a solid block of cork, containing nothing but its natural constituents. No cement or foreign substance is used.

How Applied. J-M Pure Cork Tile is set in special waterproof cement that holds equally well on a wood, metal or cement backing. It is customary to leave the tile without artificial finish, but, if desired, very attractive finishes can be obtained by applying any standard floor wax.

Advantages. J-M Pure Cork Tile outwears all other floor coverings. Will even outwear a hard wood floor. Our method of compressing and baking each tile separately gives it a harder and more uniform surface than is possible by manufacturing tile two or more at a time and afterwards cutting them apart.

It is as noiseless to the tread as a heavy carpet, and its resilience minimizes footsoreness and fatigue.

J-M Pure Cork Tile is highly fire-resisting. It will retard the spread of flames from one floor or room to another.

Because of its efficiency as an insulator, it helps to keep rooms cooler in summer and warmer in winter.

Being a non-conductor of electricity, it makes a valuable flooring around switchboards or wherever electrical apparatus is in use.

The method of laying this flooring hermetically seals all joints and renders it impossible for germs or filth of any kind to get into cracks or under tiling. Grease and liquids do not stain it. It can be washed with warm water or a diluted disinfectant without injury, and, being non-absorbent, is clean and sanitary.

Decorative Application. J-M Pure Cork Tile produces an especially rich and warm effect to all interior decorations. It can be used successfully in any decorative scheme, as there is no limit to the variety of patterns and shapes that can be produced. A large number of designs used in parquetry are available in this tiling.

The surface of J-M Pure Cork Tile is totally different from graining effect found in the various woods used for interior decoration. Yet it harmonizes perfectly with any of them. When used for wainscoting, particularly artistic effects are obtainable as tiling takes a varnish finish of any desired tone.

Colours. J-M Pure Cork Tile is supplied in light, medium and dark colours. The dark tiling approximates Italian Walnut, while the light is similar to Syrian Olive. These different colours are obtained by simply changing the temperatures of the baking ovens. No artificial colouring is used.

The slight variation in the colouring of these tiles, in connection with their veined and mottled appearance, gives a delicately shaded effect that is much more pleasing than the sharp alternation of colour found in ordinary tiling.

Sizes. J-M Pure Cork Tile is furnished in the following standard sizes:

Border strips, random lengths, 12 in., 6 in., 4 in., 3 in. and 2 in. wide.
Fields, squares, 12 in. x 12 in., 6 in. x 6 in., 4 in. x 4 in., and 3 in. x 3 in.
Blocks, 12 in. x 6 in., 12 in. x 4 in., and 12 in. x 3 in.
Special sizes furnished if desired.

J-M AKOUSTIKOS FELT FOR CORRECTION OF ACOUSTICS.

We are prepared to execute contracts for the correction of defective acoustical conditions in all types of public and municipal buildings: churches, theatres, court houses, schools, colleges, hotels, offices, etc. In handling such contracts we are rarely compelled to make any radical changes in general architectural details. Where it has been found necessary to make slight modifications, this has been done in such a manner as not to impair the general appearance of the interiors.

Our method of treatment consists of applying J-M Akoustikos Felt of a proper thickness to such portions of interior surfaces as is found necessary to reduce excessive reverberation to a degree consistent with distinct hearing and yet preserve sufficient intensity of sound. This felt is covered and protected with a membrane which can be decorated in any desired manner so as to reproduce the original appearance of the surfaces treated.

Our Acoustical Department is in charge of experts who have made a scientific study of architectural acoustics, and their knowledge is supplemented by the practical experience gained in the technic of applying the necessary corrective materials.

SIEMON BROS., LIMITED

AGENCIES
C. A. SPENCER,
Eastern Townships Bank Building,
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201 McKinnon Building, TORONTO.
Travelling Salesman for Ontario.

AGENCIES
W. K. CHANDLER,
421 Union Bank Building,
WINNIPEG, MAN.
D. E. CARLSON,
37 Alexandria Street,
VANCOUVER, B.C.

PRODUCTS. We are manufacturers of "DIAMOND" BRAND HARDWOOD FLOORING, which is made from selected Maple, Birch, Beech, and Oak (quarter-cut and plain).

FACILITIES. We are excellently situated as regards a supply of raw material, having an almost unlimited supply at our door, with shipping facilities unsurpassed.

DRY KILNS. The capacity of our Dry Kilns is 30,000 feet per day, and these Kilns are equipped with the latest devices for drying lumber artificially. We have a staff of skilled workmen well trained in securing the best results by avoiding "cooking" the stock and thus destroying its fibre, on the one hand, or under-drying it on the other. This is very important, as the life of the floor as well as its appearance largely depends on the material being properly kiln dried. Factories not properly equipped cannot be depended upon to turn out a product which will give entire satisfaction for years after the floor is laid.

FACTORY Our machining department has a capacity of 20,000 feet per day. It is equipped with specially built machines for planing, tonguing and grooving, hollow backing, boring (for blind nailing), polishing and end matching.

We engage only skilled workmen who have spent years in learning to operate and care for this machinery, who are capable, with our equipment, of turning out a product unequalled by the ordinary "planing mill."

"DIAMOND BRAND" flooring is all polished before it is tongued and grooved, therefore guaranteeing a sure fit and even surface; all other brands are tongued and grooved first and then polished, which means that the face of board is scraped after the fit had been made, therefore there are always the chances of an imperfect floor on account of scraping, cutting heavier at one place than another, which is absolutely impossible with "Diamond Brand" flooring.

STOCKS CARRIED. In order to take care of the requirements of our customers and fill rush orders promptly, we have enlarged our warerooms to a capacity of 2,000,000 feet and always carry a stock of 600,000 feet of various grades. We also carry a large stock at our principal agencies.

CONTRACTS EXECUTED. Below we give the names of some prominent buildings where our flooring has been used exclusively:—

New Public Library	Toronto.	Rolfsby-Shaw Milling Co.	Port Colborne.	Spencer Building (Department Store), 8-storey	Vancouver
Convocation Hall	Toronto.	Bell Telephone Building	Toronto	Somerset Block	Winnipeg.
Physics Building	Toronto.	Lethbridge Y.M.C.A. Building.	Lethbridge	Devon Court	Winnipeg
University Addition	Toronto.	Fleetwood School	Fleetwood	Warwick Apartment	Winnipeg
Bank of Hamilton	Toronto	St. Michael's Hospital	Toronto.	Cecil Rhodes School	Winnipeg
Canadian General Electric Co.	Toronto.	M. & L. Samuel, Benjamin & Co., New Offices and Warehouse	Toronto.	Nanton Building	Winnipeg
King Radiator Co. Building	Toronto.	Clummire & Groove Stopper Co., Warehouse	Toronto.	Moxam Court	Winnipeg.
Somerville, Ltd	Toronto	Frank H. Fleer & Co. Chiclets Factory	Toronto	Cuthbertson Building	Fort William.
Otto Higel Co	Toronto	Otto-Higel Co. (Piano Action Factory), large addition	Toronto	Willis Building	Montreal
T. Eaton Co	Toronto	General Leather Goods Co	Toronto	McDonald College	Montreal
T. Eaton Co	Winnipeg	Somerville Brass Co., Ltd	Toronto.	Yorkshire Ins. Building	Montreal
Post Office	Winnipeg	King Radiator Co., Factory Building, Head Office	Toronto	American Tobacco Co., Warehouse	Montreal
Post Office	Regina	Thos. Ogilvie & Sons, Ltd 8-storey Warehouse	Toronto	Landed Banking & Loan Co	Hamilton
Normal School	Peterboro	Sunbeam Incandescent Lamp Co	Toronto.	E. D. Smith (Residence)	Wiiona
Normal School	Stratford	High School and Collegiate	Perth	Hamilton Cotton Co.	Hamilton
Normal School	North Bay	St. Joseph's Hospital	Victoria	London Printing & Litho Co	London.
High School	Picton			Copeby, Noyes & Randall	Hamilton.
Public School	West Toronto.			T. W. Watkins, Dry Goods House	Hamilton
Roller Rink	Oshawa			Collegiate Institute	Moose Jaw.
Roller Rink	Welland			And many others	
Roller Rink	Grimsby				
Roller Rink	Toronto.				
Roller Rink	Hamilton				
Morris Piano Co	Listowel				

HOIDGE & SONS

34 PRICE STREET,
TORONTO, - ONT.

GENERAL. We are equipped to undertake any size contract for PLASTER WORK of any description.

STAFF. Architects who are familiar with Staff invariably specify this material when it is necessary to complete work in as short a time as possible. All moulded Cornices, Beams and Enrichments are cast in the shop and applied in position on the job. The most elaborate work can be carried out in this way, and in two days after completion is sufficiently dry to receive decoration, thus effecting a great saving of time.

CAEN STONE PLASTER. Caen Stone Plaster is coming into use more and more every day. It is the most durable of all plasters, and requires no decoration or tinting. Some of the largest buildings in Canada and the United States have been finished in this material. We are in a position to carry out this work perfectly.

The base coats require special preparation and care, and the finish coat is capable of a variety of treatments, such as tooling, dragging, etc., which can only be done by experienced workmen. (Note the wall treatment and ornament in cut.)

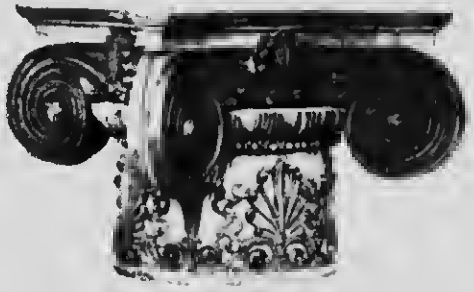
CEMENT EXTERIORS. The old fallacy of our climate being too rigorous for cement exteriors is being slowly but surely exploded. This fact, in view of the phenomenal growth of reinforced construction, opens up another avenue for the progressive architect. This work to be successful, however, must be well studied and in the hands of only first-class men.

NEW PUBLIC LIBRARY, COLLEGE STREET, TORONTO.
Caen Stone and Plaster Work executed by us.

ESTIMATES. We are prepared to submit tenders on all kinds of Plaster Work, and will be glad to advise in regard to the best treatment of any class of work.

W. J. HYNES, LIMITED

720 DUPONT STREET, TORONTO, ONT.



PRODUCTS. ARCHITECTURAL ORNAMENTS IN STAFF, PLASTER, EXTERIOR COMPO, INTERIOR COMPO, CAEN-STONE CEMENT, KEENES CEMENT, AND PORTLAND CEMENT. INDIRECT AND SEMI-INDIRECT LIGHTING FIXTURES in stock and made to Special Designs. ELECTRIC LIGHT STANDARDS, SCALE MODELS of BUILDINGS, RELIEF MAPS, etc.

Sketches and estimates furnished. Send for catalogue.

CAEN STONE FIRST WORK. OUR LADY OF LOURDES CHURCH, SHERBOURNE STREET, TORONTO. J. P. HYNES, ARCHITECT

REFERENCES. Below find partial list of buildings for which we have furnished the ornament.

New Grafton Theatre	Hamilton, Ont	N. G. Bekss, Architect	Rex Theatre	Fort William, Ont	Curson & Smith, Architects
Lyric Theatre	Hamilton, Ont	Lyon H. Lempert, Architect	Grain Exchange Building	Fort William, Ont	Carl Wirth & Smith, Architects
Kilmorgan Theatre	Owen Sound, Ont	N. G. Bekss, Architect			
New Episcopal Residence	Charlottetown, P.E.I.		Graphic Arts Building	Toronto, Ont	
Dental Hall, College St	Toronto, Ont	Mr. Paul, Architect	Canadian Bk of Commerce	Winnipeg, Man	Darling & Pearson, Architects
Union Bank	Prince Albert, Sask		Moving Picture Theatre	Douglas and Maverly Sts., Toronto	
York Theatre	815 Yonge Street	A. J. Read, Architect	Bank of Toronto	Toronto	Currere & Hastings, Architects
R.C. Church	La Salette, Ont	Peter Diedericks, Architect	Empress Theatre	Moncton, N.B.	
New Theatre	Brantford, Ont	J. K. White, Architect	Columbian Fish Building	Toronto	A. J. Read, Architect
Bernet Theatre	Bloor St., West Toronto	N. G. Bekss, Architect	Garland Theatre	Edmonton, Alta	Mallory & Thatcher, Architects
Hotel Heals	Calgary, Alta		Flanagan Hotel	Saskatoon, Sask	W. W. LaChance, Architect
Toronto Stock Exchange	Toronto	J. M. Lyle, Architect	West End Bible Society	College Street, Toronto	Gordon & Helliwell, Architects
New Library Building	Owen Sound, Ont	Forster & Clark, Architects	New Opera House	Brockville, Ont	A. Stuart Allaster, Architect
Royal Bank	Owen Sound, Ont	Forster & Clark, Architects	Mason & Risch Building	Toronto, Ont	Rund & Smith, Architects
Rexie Building	Toronto, Ont	Burke, Horwood & White Architects	Imperial Bank	Ingersoll, Ont	J. M. Lyle, Architect

THE PLASTIC RELIEF MFG. CO.

DISTRIBUTORS WM. N. O'NEIL CO., LIMITED.
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E 4	Compo Electric Light Fixture.	
E 21	Indirect Lighting Compo Bowl	
E 14	Compo Electric Light Fixture.	
9850	Festoon, sizes ranging from 8 in. to 14 in. in width	
2500	Capital, exterior compo or interior plaster.	Sizes ranging from 3 in. to 26 in. round or square.
	Interior to match any wood	Sizes ranging from 4 in. to 10 in. round or square.
1500	Capital, exterior compo or interior plaster.	Sizes ranging from 3 in. to 26 in. round or square.
	Interior to match any wood.	Sizes ranging from 1 in. to 14 in. round or square.
5300	Bracket, exterior compo or interior plaster	Sizes ranging from 2 in. to 11 in. face width.
	Interior to match any wood	Sizes ranging from 2 in. to 4 in. face width.
5000	Bracket, exterior compo or interior plaster	Sizes ranging from 2 in. to 10 in. face width.
	Interior to match any wood	Sizes ranging from 1 in. to 6 in. face width.

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EXPANDED METAL LATH.

Furnished in 26, 24 and 23 gauge, painted, 18½ in. wide.

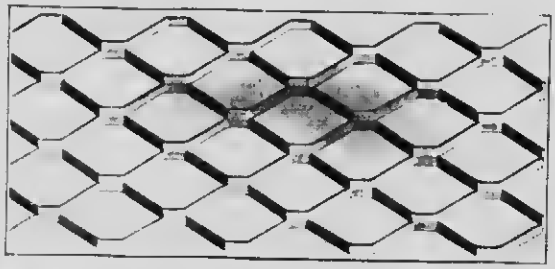
Furnished in 24 and 23 gauge, galvanized, 18½ in. wide.

Furnished in 26 and 24 gauge, painted, 24 in. wide.

Furnished in 24 gauge, galvanized, 24 in wide

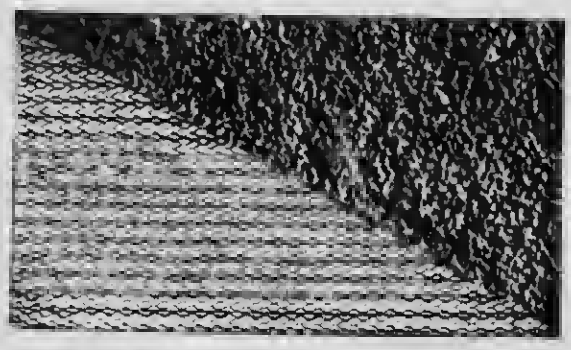
The actual length of sheet, 97 in., length charged for, 96 in.

Pedlar's "Perfect" Expanded Metal Lath has a neat, small mesh, the narrow strands of which furnish a superior bonding surface by allowing the mortar to completely embed the lath on both sides, the clinch bonding on the back. This lath has been used on nearly all the large and prominent buildings erected in Canada in the past five years.



"PERFECT" EXPANDED METAL LATH

TRUSS FABRIC FOR STUCCO WORK.



TRUSS FABRIC

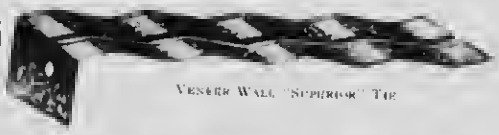
Pedlar's "Perfect" Truss Fabric is the "Perfect" Metal Lath corrugated after being expanded. By corrugating the lath, an absolute key is secured behind the face of the fabric, and the slab becomes reinforced, rendering cracking and disintegration impossible; an incomparable medium for the renovation and reconstruction of old houses.

Standard sizes of sheets, 17 in. x 96 in.; furnished either painted or galvanized; applied with metal lath staples or our special flat-headed nails. Full directions for stucco work on application.

WALL TIES.

SOLID WALL "SUPERIOR" TIE

The "Superior" Corrugated Wall Tie, for either solid or veneer brick walls, is 1 in. wide, 8 in. long (solid style), 4½ in. (veneer style), galvanized only. A very strong, rigid tie.



VENEER WALL "SUPERIOR" TIE

The "Universal" Wall Tie is 1 in. wide, 8 in. long, and made of very heavy gauge, and furnished either painted or galvanized.

The "Perfect" Wall Tie is 2½ in. wide, 8 in. long, and made from Expanded Metal lath, furnished either painted or galvanized.

SOLID WALL "UNIVERSAL" TIE

WALL PLUGS.

The "Perfect" Wall Plug, furnished either painted or galvanized, makes an ideal nailing base for interior finish in brick and concrete construction. They are used in all modern and fire proof buildings, and have displaced wooden plugs and similar methods entirely.

"PERFECT" WALL PLUG.

CONTINUED ON NEXT PAGE

METAL CORNER BEADS.

We have the largest production in the world and make all the various modern styles of Corner Beads. The slight cost of Corner Beads and the perfect results secured make them indispensible in connection with all public buildings, large or small. Used on Canada's biggest and best buildings.

"PERFECT" CORNER BEAD

Pedlar's "Perfect" Corner Beads are furnished galvanized in lengths 4, 5, 6, 7, 8, 9 and 10 ft., and can be easily notched with tinner's snips and curved to fit any arch.

Our "Universal" Bead is galvanized and in 6, 8 and 10 ft. lengths.

Our "National" Solid Rail Corner Bead is galvanized and furnished in 6, 7, 8, 9 and 10 ft. lengths.

STEEL STUDS AND FURRING.

We make Sheet Metal "T" Studs and Channel Studs and Furring, and furnish same either painted or galvanized. These are made regularly of No. 18 gauge high carbon steel. The studs and furring have prongs pressed out of the metal, to which may be applied metal lath and requiring no other fasteners. Make solid fire-proof walls at low cost.

Pipes and wire may be run between the walls where channel studs are used. "T" studs make a solid wall. Furring is for any style of wall or ceiling.

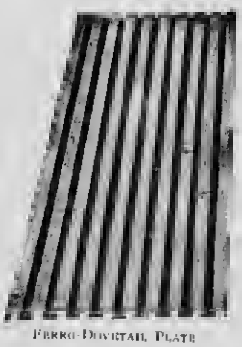
Furnished in any length up to 10 ft. Approved for use everywhere.

Top and bottom sockets supplied.

FURRING. "T" STUD. CHANNEL STUD

FERRO-DOVETAIL PLATES.

These make an ideal roof for permanent buildings, where absolute protection and no expense for up-keep is desired. Furnished painted or galvanized, in any gauge. Makes a very strong, self-centering floor.



FERRO-DOVETAIL PLATE

TABLE OF SAFE LOADS FOR FERRO-DOVETAIL PLATES

(Factor of Safety of 4.) Straight Sheets, 24 Gauge. Depth of Corrugations, ½ inch

Depth of Concrete above Corrugation	Dead Load per Sq. Foot	Live Load per Square Foot							
		Span 3'	4'	5'	6'	7'	8'	9'	10'
½ inch	10 lbs.	84	52	32	16				
1 "	24 "	206	110	61	35	16	7		
1½ "	30 "	355	191	110	66	39	22	10	
2 "	36 "	584	296	252	129	88	58	34	21
2½ "	42 "	803	401	277	197	128	83	58	38
3 "	48 "	1174	634	424	274	182	112	72	52
3½ "	54 "	1560	720	500	343	228	147	113	81
4 "	60 "	1948	886	540	350	244	176	124	91
4½ "	66 "	1758	944	584	388	264	186	126	104
5 "	72 "	1868	1066	646	440	288	220	149	109

CLARENCE W. NOBLE

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TORONTO, ONT.

417 New Birks Building, MONTREAL.

1015 Electric Railway Chambers WINNIPEG.

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HERRINGBONE METAL LATH.

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The Cause—Herringbone Ribs

The Effect—Superior Stiffness

DISTINGUISHING FEATURES. The selvage edge, the stiffening ribs, the increased length, the twisted filament, the superior coating each one of these features afford advantages not found in any other type of metal lath.

THE SELVAGE EDGE. A device to secure a perfect connection between adjacent sheets without lapping. It enables the sheets to spread over their entire area, thus covering with a given amount of lath, about ten per cent. more surface than when ordinary metal lath is used. The selvage edges rest so closely together that there is no danger of plaster working between them and spreading them apart. Wiring the edges of the sheets together, a device which is used with ordinary metal lath to prevent bulging, is thus entirely unnecessary with Herringbone. These selvages are always perfectly true and parallel. They cannot be manufactured otherwise. The inconvenience and waste resulting from irregularly shaped sheets is thus entirely avoided.

Large Lap Requires Excessive Waste

THE RIBS. These give Herringbone Lath its superior stiffness. Twenty-seven gauge Herringbone Lath for walls, on wood studs sixteen inches apart, or twenty four gauge on ceiling joists, sixteen inches apart, will be found entirely satisfactory. With ordinary metal lath the maximum span is twelve inches. In order to attain the maximum economy from the use of Herringbone Lath, the carpenter specification should, therefore, be written with this lath in view.

These ribs also act as miniature brackets to sustain the wet clinch of the mortar before it has set up. A mortar which is too wet, or insufficiently haired, will thus make a good job with Herringbone Lath, while a good mortar will make a perfect job. Mortar which drops off the back of the lath does not form the key. It is only the mortar that sticks that is effective. In this respect Herringbone Lath, the only ribbed lath, is in a class by itself.

Contractors who have worked with baggy metal lath realize that it is an unprofitable job. To be constantly filling up hollows with mortar only to have these hollows change to bumps when the trowel is applied on the other side of the stud is most discouraging. Men who have had this experience, appreciate Herringbone stiffness. Architects who appreciate plaster of uniform thickness will use Herringbone.

CONTINUED ON NEXT PAGE

THE INCREASED LENGTH

Most metal lath is delivered in sheets eight feet long. Herringbone sheets are eight feet one and one half inches long. There is thus a lap of one and one half inches on the end stud and one row of nails will fasten the ends of both sheets. Rough carpenter work is all that the name implies. If the end stud is out one inch the end joining line with ordinary lath sheets will fall off the stud entirely. As the ends of both sheets must be rigidly attached, it is necessary to lap over a foot to the next stud. If Herringbone lath is used, the end stud may be two and one half inches out of place before this waste becomes necessary

EXTRA LENGTH HAS ADVANTAGES

THE TWISTED FILAMENT.

The filaments between the ribs run in a direction closely parallel to the stroke of the plasterer's trowel. As the trowel passes upward, the edge of the filament is first presented, and plaster is permitted to pass through to form a clinch. This action is checked almost immediately by the twist in the filament, which then presents its flat side to the trowel, and is cut off entirely by the next rib, which, acting as a baffle, throws the excess plaster back on the trowel. The heaviest clinch is thus deposited at the bottom of the filament and rests directly on the rib below. The support of the wet mortar in this manner is the reason for the superior Herringbone clinch. No other brand of metal lath has this feature.

HERRINGBONE COATING.

The corrosion of unprotected metal lath in hard wall plaster has been found to be the result of electrolysis. Plaster of Paris, the basis of the patent plasters, generates slight electric currents while the molecules are re arranging themselves during the process of hardening. It is these currents that do the mischief. The correct protection for metal lath, therefore, is not a paint, but an electrical insulator. Our cold galvanized coating fills this requirement. It is an asphaltum varnish with a chemical drier. It is a perfect non conductor of electricity. As it contains no linseed or other vegetable oil, it is not subject to decay, nor is it attacked by acids in the plaster

SHERARDIZED LATH

For particular people, those who object to any coating which may become chipped off, we offer Sherardized Herringbone Metal Lath. Sherardizing is the latest improvement in galvanizing. The zinc reaches the steel in the form of vapour and deposits first as a zinc iron alloy. Above this alloy, the pure zinc is deposited. A given amount of zinc in this process has been shown by the acid test to be fifteen times more efficient than in the hot galvanizing process. Any Herringbone agent will make the test for you.

The subject of the protection of metal lath is so interesting that a booklet has been written about it. Ask for "Things Worth Knowing."

PACKING.

Herringbone sheets are twenty and three eighths inches wide by eight feet and one half inches long. They are billed as one and a half square yards each, although they are slightly more than that. They are bundled twenty sheets, or thirty yards to the bundle.

Herringbone Lath is only cut in twenty-four and twenty-seven gauges.

PRICE.

It costs to make Herringbone quality, and we charge you a cent or so per yard more than you would pay for the ordinary kind. Your saving, though, is several times the increased first cost of the lath. You have no waste of lath in side or end lap. No waste of labour in stretching the lath flat, nor wiring of the selvages, and no waste of plaster from dropping off the back or filling up the hollows.

Architects who appreciate a supported clinch and plaster of uniform thickness, may, therefore, feel assured that by specifying Herringbone Lath they secure these advantages, without increasing the cost of their building.

PARTITIONS.

The essential features of a partition in a modern building are, minimum weight combined with maximum stiffness, soundproofness, and its fire-retarding qualities. There are two general classes of partitions: those composed of burnt tile, plaster blocks and similar materials, and those made of cement plaster on a framework of metal lath and metal studs, or metal lath on wood studs.

A tile partition weighs about twenty-four pounds per square foot, and when plastered about thirty-eight. On the other hand, a metal lath and stud partition weighs, plaster included, eighteen pounds per square foot, thus effecting a saving of twenty pounds per square foot. For designing the steel frame, the partition is considered as uniformly distributed load over the entire floor; the twenty pounds would thus represent a saving of about twelve per cent. in the weight of frame required, and therefore a similar saving in the cost. The soundproofness of the lath and stud partition is entirely satisfactory whether constructed solid, *i.e.*, plastered on both sides of single layer of lath to a thickness of two inches; or hollow, this latter style having lath on both sides of a one-inch or two-inch metal stud, and having the advantage of affording space for piping and conduits.

The above advantages are enough to make the lighter partition preferable, but a still more important feature remains, *i.e.*, the fire-retarding qualities. When a fire occurs in a room, its danger and destructiveness is merely local so long as the partition remains intact, but once that gives away, the resulting current of air spreads the fire with great rapidity. In the ordinary fire, temperatures as high as 1900 F. occur. The expansion of a tile partition on the heated side, at this temperature, is so great that either one of two things must occur, the tile must crush and break off, leaving holes, or the partition must bulge out and fall entirely. In either case it has no salvage value. On the other hand, the lath and stud partition bulges but does not break, a small amount of plaster calcines and washes down and the repairing is only a matter of a few dollars.

The advantage of a two-inch partition over a six-inch one as a space saver, and, therefore, an increaser of rental values, is self-evident.

Why not use the lightest, cheapest and most fireproof partition and at the same time increase your revenue?

MANITOBA GYPSUM CO., LIMITED

MANUFACTURERS OF

HARDWALL PLASTERS AND OTHER GYPSUM PRODUCTS.

GENERAL OFFICE, SALES OFFICE AND MILL

WINNIPEG, MAN.

QUARRIES: GYPSUMVILLE, MAN.

PRODUCTS

"EMPIRE" BRANDS OF WOOD FIBRE PLASTER, CEMENT PLASTER, PREPARED TROWEL FINISH (no lime required), PREPARED FLOAT FINISH (no lime required), "TROWEL" BRAND PLASTER OF PARIS, "GOLD DUST" BRAND COMMON FINISH, "GYPSEMENT" BRAND PREPARED HARDWALL PLASTER (no sand required), "GYPSTONE" BRAND PREPARED ROUGHCAST (for outside work), PLASTER BOARD (the fireproof lath).

SUPERIORITY OF GYPSUM PRODUCTS

Wall Plaster, manufactured from Gypsum has almost entirely taken the place of all other wall plaster.

Gypsum Plasters are fireproof and practically indestructible.

Gypsum Plasters are easily worked and have good setting and maturing qualities, thus enabling the plasterer to cover more space in a given time than with any other plastering material.

TESTS

All our products are thoroughly tested and are guaranteed to give good results, provided material is used in accordance with our specifications.

EXPERTS

We have a reliable staff of plaster experts, and their services and advice are at the disposal of all those who require reliable plaster information.

ARCHITECTS' SPECIFICATIONS FOR THE USE OF WOOD FIBRE, CEMENT WALL PLASTER, "EMPIRE" BRANDS AND GYPSEMENT

GROUNDS

For Wood Lath (to be $\frac{5}{8}$ in. to $\frac{3}{4}$ in. preferably $\frac{3}{4}$ in.

For Brick or Tile (to be $\frac{1}{2}$ in.

For Wire Lath or Expanded Metal (to be $\frac{3}{8}$ in. to $\frac{1}{2}$ in. over face of lath.

For Plaster Board (to be $\frac{1}{4}$ in. to $\frac{3}{8}$ in.

WOOD LATH

To be No. 1 White Pine or Spruce, free from knots, sap or bark. To be spaced $\frac{1}{4}$ in. apart and well nailed. If lath are dry, they should be liberally sprinkled with water three or four hours before the plaster is applied, so as to allow lath to swell and thus avoid buckling. Green or half green lath are preferable.

PLASTER

To be _____ manufactured by the Manitoba Gypsum Co., Ltd., and to be mixed and applied according to their printed instructions.

SAND

"Empire" Wood Fibre Plaster can either be used neat or it can be mixed with clean, sharp sand in the proportion of one to one where used on plaster board, wood or metal lath, where used on brick or tile walls, two parts of clean, sharp sand can be added to one of wood fibre.

"Empire" Cement Wall Plaster, where used on plaster board, wood or metal lath, should be used in the proportion of one part plaster to two parts clean, sharp sand. Where used on brick or tile walls, three parts of clean, sharp sand can be added to one of cement wall plaster.

GYPSEMENT WALL PLASTER.

Should be used neat—sand must not be added.

GYPSTONE.

The plaster for outside roughcast effects.

Gypstone is waterproof and is supplied either natural or coloured.

PLASTER BOARD.

The combination lath of felt and plaster. It takes the place of wood lath and economises time in construction. It is a sound deadener and is practically fireproof. Plaster Board requires a brown coat and a finish coat of plaster.

CONTINUED ON NEXT PAGE

"EMPIRE" KEENES CEMENT.

The "Empire" Keenes Cement is fast replacing the imported Keenes where high class material is wanted for Base, Mouldings, Wainscoting, Castings, or where any work requires hardness, which can only be obtained by the use of high grade Keenes Cements.

Write for Specifications.

"EMPIRE" ARTIFICIAL CAENSTONE CEMENT

The natural decorative possibilities are unequal, but owing to its high cost, also the high cost of the different Foreign Artificial Caenstone, we have perfected the "Empire" Caenstone so that it is equal to any imported, and pronounced by some to be more uniform and superior to the imported article. Works smooth, and has no equal as a finish for Lobbies, Columns, Walls, Walls in Vestibules, Church Arches, Halls, Theatres, or any surface where an artistic effect, durability and hardness combined are desired.

Write for Specification Booklet.

"NATIONAL" STEEL STUDDING

ADVANTAGES.

We have carried out a number of experiments with the "National" Steel Studding, and as a result of our belief in its possibilities we have purchased the patent rights for the Dominion of Canada.

"National" Steel Stud is cheap and simple to erect; it is light in weight and a great saver of floor space; and it ensures greater strength and durability.

The "National" is the only steel studding manufactured on which plaster board or wire lath can be used. It is manufactured for either hollow or solid plaster board walls.

METHOD OF USING.

The studs are spaced 32 inches on centre and held in place by means of top and bottom stringers, to which the stud is securely locked. The sections of plaster board are then braced together with clips, spaced 7½ inches apart, thereby making a reinforced plaster wall. This form of construction is not only the most durable for partitions, but it is also the cheapest, lightest and simplest to erect. A partition of "National" Steel Stud and Plaster Board, plastered with either "Empire" Cement Plaster or "Empire" Wood Fibre Plaster is practically a reinforced slab.

ADAPTED TO ALL FIREPROOF PARTITION CONSTRUCTION.

"National" Steel Studding being securely fastened every 6 inches or 8 inches to the door bucks and wood framing at all openings cracks, which are so conspicuous in other forms of partition construction, are practically eliminated.

"National" Steel Stud is adapted to all forms of fireproof partition construction from a solid partition finishing, 1¼ inches, to a hollow partition finishing, 7 inches, with air space 5¾ inches. With the hollow form air spaces of from ¾ inches to 5¾ inches can be obtained, thus affording an opportunity to conceal all wires and pipes.

SPECIFICATION FOR HOLLOW PARTITIONS.

Studs to be spaced 32 inches on centre and fastened at floor and ceiling with clips furnished by the manufacturer for the various types of construction, such as wood, tile or concrete. The Plaster Board is then to be attached to the studs by means of nails spaced 4 inches apart in the Style "B" stud. The nails engage the edge of the Plaster Board and hold same securely in place. The sections of boards are then braced by means of double cross clips which are spaced 7½ inches apart. Plaster with "Empire" Wood Fibre Plaster or "Empire" Cement Plaster, using sufficient mortar to cover the lip of the studding one-quarter inch before applying finish coat.

SPECIFICATION FOR SOLID PARTITIONS.

Studs to be spaced 32 inches on centres and fastened to the flooring and ceiling. The Plaster Board is first inserted in the deep slot in stud and then brought back to the shallow slot in opposite stud, thereby engaging both edges of the Plaster Boards in studs. The horizontal edges of the Plaster Board are then engaged by means of cross braces extending from stud to stud and constructed to allow ½ inch space between Plaster Board edges, thereby insuring perfect key for mortar. Plaster both sides with "Empire" Wood Fibre Plaster or "Empire" Cement Plaster applied according to directions furnished by the Manitoba Gypsum Company, Limited, using sufficient mortar to fully cover the face of upright studding at least ¼ inch before applying finish coat.

CONTINUED ON NEXT PAGE

"EMPIRE" FIREPROOF TILE.

ADAPTABILITY

"EMPIRE" Fireproof Tile is a fireproof material composed of pure Manitoba Gypsum Hydrated Plaster, bonded with fibre and made into block form. It is used for fireproofing of structural steel, for wall furring, block tile, insulation from heat and cold, and for sound deadening.

A NON CONDUCTOR OF HEAT DOES NOT EXPAND.

Pure Gypsum is one of the best non conductors of heat known, further, pure gypsum has a coefficient of expansion under heat of practically zero. The "EMPIRE" Fireproofing Tile being made of pure gypsum is, therefore, a non conductor of heat and not subject to expansion under its action.

"EMPIRE" Tile does not expand under the action of heat, and is, therefore, stable when subject to fire. The action of the "EMPIRE" Fireproof Tile when subject to high temperature is similar to that of concrete. Quoting the report of Professor Norton, of the Massachusetts Institute of Technology: "When brick or terra cotta is heated, no chemical action occurs, but when concrete is carried to about 1,000 degrees Fahrenheit its surface becomes decomposed, dehydration occurs and water is driven off. This process takes a relatively great amount of heat—it requires about as much heat to drive the water out of the outer inch of concrete as it does to raise the next 4 inch to 1,000 degrees Fahrenheit. Now, a second action begins, after dehydration, the concrete is much improved as a non conductor, and yet, through this layer of non-conducting material must pass all the heat to dehydrate and raise the temperature of the layers below, a process that cannot proceed with great speed."

EASILY REPAIRED

A partition of "EMPIRE" Fireproof Tile subjected to fire would only require a light coat of plaster to place it in perfect condition.

NON CONDUCTIVITY

The importance of non conductivity in fireproofing may be realized when it is considered that a temperature of 800 degrees Fahrenheit weakens steel 10 per cent., and an increase in temperature to 1,700 degrees Fahrenheit weakens it 50 per cent.

RECORD OF TEST.

At Cornell University in 1895 two chambers were formed, one being floored with a slab of plaster material, and the other with fireclay or terra cotta, a coke fire was maintained under them, and after three hours the heat in the upper chamber, formed of plaster material, was only 184 degrees, while in the adjoining chamber, floored with fire clay, it was 600 degrees. After five hours the temperature was 384 and 1,500 degrees respectively.

FIRE RETARDENT

In Europe, where Gypsum and Gypsum Tile are used to a considerable extent in fireproofing, it is a matter of record that fires are usually confined to the building, and often to the room in which they originated. European fire equipment is not to be compared for efficiency with our fire fighting equipment, yet, notwithstanding this fact, our fire loss is $2.35, whereas in Europe it will not average 34c. per capita.

ADVANTAGES.

Fireproof Tile being light in weight, a saving can be effected in foundations, and in the cost of steel and cost of structural steel.

Fireproof Tile lays up smoothly and even. All the tile being of uniform size and [illegible] a greater number can be handled by the labourer, and a mason can lay more square feet [illegible] than can be done with other material. As less plaster is required, the plasterer can cover more surface, making a saving in weight, cost, labour, and material.

LOW IN COST, HIGH IN QUALITY.

"EMPIRE" Fireproof Tile is light in weight, low in cost, high in quality, fireproof, sound proof, an insulator, and quickly erected.

"EMPIRE" Fireproof Tile is an insulator of sound.

"EMPIRE" Fireproof Tile is absolutely straight and can be laid perfectly true and to a line.

"EMPIRE" Fireproof Tile is made from 2 to 6 inches in thickness.

SIZES AND WEIGHTS

Standard sizes and weights of "EMPIRE" Fireproof Tile:

2 inches x 12 inches x 30 inches weighs 9¼ lbs. per square foot, solid.
2 inches x 12 inches x 30 inches weighs 6¼ lbs. per square foot, furring.
3 inches x 12 inches x 30 inches weighs 9¼ lbs. per square foot, hollow.
4 inches x 12 inches x 30 inches weighs 12¼ lbs. per square foot, hollow.
5 inches x 12 inches x 30 inches weighs 15 lbs. per square foot, hollow.
6 inches x 12 inches x 30 inches weighs 16½ lbs. per square foot, hollow.

SPECIFICATIONS.

The partitions shall be started on the fireproofing floors, which shall be properly levelled to receive same before the laying of partitions is begun.

All walls and partitions laid up of fireproof tile must be tightly wedged against the underside of the fireproof floors above.

The carpenter contractor shall set the rough bucks for openings ahead of the contractor for the fireproof tiling. The bucks shall be left plumb and true by the carpenter and shall be made of [illegible]. the face abutting the partition tile to be 1 inch wider than the thickness of the tile, each tier of the blocks to be nailed at top with rod nails to plain bucks, or the buck to be rabbeted in ¾ inch and the exact thickness of the tile to receive the same.

Furr all outside walls where shown on plans with "EMPIRE" Fireproof Tile, laid up against the wall and securely anchored to brick walls by anchor nails.

All tile to be laid up in mortar made of one part of "EMPIRE" Cement Plaster and two parts of good sharp sand, thoroughly mixed, breaking joints and banding corners, all perfectly true and plumb. Grounds shall be ¾ inch.

PLASTERING.

The base coat shall be made of one (1) part of "EMPIRE" Cement Plaster and two (2) parts clean sharp sand, mixed and used according to the manufacturer's directions, to be filled out to grounds, soaked and darbied to a straight and even surface.

Finish with "EMPIRE" finish, white coat or float finish, to be applied according to manufacturer's directions.

THE CANADIAN STEEL STUDDING & MANUFACTURING CO., LTD.

HEAD OFFICE 327 WINCH BUILDING.

FACTORY 136-138 LORNE STREET WEST.

VANCOUVER, B.C.

FOR SALE BY

WM. N. O'NEIL & CO., LTD., Wholesale Builders' Supplies, VANCOUVER and VICTORIA, B.C.
WESTERN SUPPLY & EQUIPMENT CO., LTD., Wholesale Builders' Supplies, CALGARY and LETHBRIDGE, ALTA.
W. B. POUCHER, Wholesale Builders' Supplies, EDMONTON, ALTA.

PRODUCTS

Manufacturers of COLLINS' PATENT STEEL STUDS, FIREPROOF PARTITIONS, CEILING and FURRING, INTERLOCKING SYSTEMS.

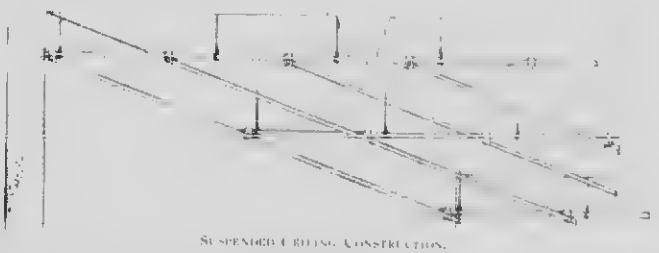
ADVANTAGES

COLLINS' patent is the latest and undoubtedly the best form of FIREPROOF METAL PARTITIONS. The material can be supplied to finish 2 in. solid, 3 in., 3½ in., 4 in., 5 in., 6 in., or even wider, if necessary, hollow. These partitions are 60% lighter, they are speedier to erect, besides being cheaper, than hollow tile and then fireproof quality for insurance rates are the same. The weakness of hollow tile was clearly demonstrated beyond the question of a doubt at the time of the Baltimore and San Francisco fires, when many of the partitions were entirely destroyed. The great weight of tile, its high cost, low tensile strength, and unreliability when a hot wall is struck by a stream of water, are its greatest objections. COLLINS is a new and unique type in which will be found none of these objections. We claim for this system STRENGTH, RIGIDITY, LIGHTNESS, LEAST AREA, INCOMBUSTIBILITY OF MATERIALS, NON-CONDUCTIVITY OF HEAT AND SOUND. And, further, it is the cheapest, on account of the great economy of labour and distribution of materials. Its very simplicity guarantees its saving in cost. By the use of baseplates perfect alignment is got, and by the use of a simple patented shoe, which fits into ceiling plates, the partition is made mechanically perfect. THERE IS NO CHANCE OF POOR WORKMANSHIP.

THIS ILLUSTRATES PERFECTION OF THE LOCKED-UP JOINT.

COLLINS' SUSPENDED CEILING CONSTRUCTION.

This reproduction gives an idea of the perfect alignment of COLLINS' INTERLOCKING SYSTEM FOR CEILINGS. The ceilings are supported by No. 7 gauge galvanized wire, making the spaces for the carrying bars 4 ft. centres, and when ¾-in. channels are slipped through the openings of the clips, which are attached to the bars by machine at the factory at any centre, it ensures the lath having proper lapping space on the channels, which is necessary to make a FIRST-CLASS JOB.



SUSPENDED CEILING CONSTRUCTION.

We invite the most thorough investigation of COLLINS' PARTITION AND CEILING CONSTRUCTION, believing same will prove its superiority over all other methods.

WRITE FOR CATALOGUE.

THE ALABASTINE COMPANY, PARIS, LIMITED

HEAD OFFICE: PARIS, ONT.

MINES AND PLASTER MILLS: CALEDONIA, ONT. ALABASTINE WORKS: PARIS, ONT

TORONTO BRANCH: ALABASTINE HARDMORTAR LIMITED, 3 JARVIS ST., TORONTO, ONT

PRODUCTS

Everything required for interior walls: PARISTONE (Neat, Haired, Gypsum Hardwall Plaster); PULPSTONE (Neat, Wood Fibred Gypsum Hardwall Plaster); STANDARD WHITE PLASTER OF PARIS; No. 3 SPECIAL GREY FINISH PLASTER (no lime required); ANCHOR BRAND HARDWALL PLASTER (sanded ready for use); MONARCH BRAND HYDRATED LIME (for finish plaster); SPECIAL EXTERIOR PLASTER (for outside work); PULPSTONE FIREPROOFING GYPSUM BLOCKS; ALABASTINE (Church's Cold Water Sanitary Wall Coating); BEST BROS. KEENE'S CEMENT.

PARISTONE.

Paristone is a Neat, Hardwall Gypsum Plaster, ready for use as soon as mixed with sand and water on the job. It is stronger, harder, many times more durable, than lime and sand mixtures. Every shipment is carefully tested. When our printed directions are carefully followed, failure is impossible.

PULPSTONE.

Pulpstone is a Neat, Wood fibred Gypsum Hardwall Plaster, ready for use, with or without sand. Especially recommended for one-coat work or for plastering over dry lath or plaster board.

FINISH.

No. 3 Special Grey Finish Plaster is prepared especially for finishing walls that are intended to be decorated, and Alabastine is recommended as the most satisfactory wall coating to use. Alabastine comes in 21 tints and white, in packages ready to mix with cold water. It can be recoated successfully many times, does not fade or peel, and lends itself perfectly to harmonious combinations with furnishings.

SPECIFICATIONS.

GROUNDS. For wood lath, $\frac{3}{4}$ in. to $\frac{7}{8}$ in.; brick, $\frac{3}{8}$ in. to $\frac{1}{2}$ in.; metal lath, $\frac{3}{8}$ in. over face of lath; plaster blocks, $\frac{1}{4}$ in. to $\frac{3}{8}$ in.

WOOD LATH. Should be best white pine, free from bark, knots or sap, green or half-seasoned is best, spaced about $\frac{1}{4}$ in. and not less than 3-16 in. Joints well nailed and broken every tenth lath. Dry lath must be wet down with water at least two hours before plastering and kept well soaked.

METAL LATH. Should be of good quality, applied according to maker's directions.

PLASTER BLOCKS. To be Pulpstone Fireproofing Gypsum Blocks, manufactured by the Alabastine Co., Paris, Limited.

PLASTER. To be Paristone, Pulpstone, or Anchor Hardwall Plaster manufactured by the Alabastine Co., Paris, Limited.

FINISH. To be No. 3 Special Grey Finish, left natural colour or tinted with Alabastine; or Monarch Hydrated Lime gauged with Standard White Plaster Paris for white putty coat.

PULPSTONE FIREPROOF GYPSUM BLOCKS.

Plaster Blocks made of gypsum and wood fibre, moulded into block form for fireproof partitions, furring, covering columns, and all steel members; also for sloping roofs and mansards. Made by hand at our works, cured outdoors, of excellent design, Pulpstone Blocks are superior to the imported kinds, stronger and less breakage.

Plaster Blocks are being used on a great many of the better-class buildings in Canada, because they combine the least weight with the greatest fire-retarding and sound-proofing qualities. They show no expansion under the most extreme variations of temperature, and will not split, warp, or crack during the progress of a fire, and have only to be replastered to restore to full strength afterward. Pulpstone Gypsum Blocks are perfectly uniform and lay up true and straight, forming an extremely rigid partition, which requires only $\frac{1}{2}$ in. of plaster to complete. Full directions and specifications given in our booklet, "Modern Fireproofing."

C.P.R. BUILDING, TORONTO
Plastered with Anchor Hardwall Plaster made by the Alabastine Hardmortar Ltd Toronto

Y.M.C.A. BUILDING, MONTREAL
An example of the class of building in which Paristone, the best of all Hardwall Plasters, is used

RIDEAU HALL, THE GOVERNOR GENERAL'S RESIDENCE, OTTAWA
DOMINION GOVERNMENT ARCHITECTS
P. Lyall & Sons had no day contract. They used on this Paristone, and finished the building 15 days ahead of time, receiving $5,000 as a bonus

ARENA GARDENS, TORONTO
Plastered with Paristone Hardwall Plaster

TRANSPORTATION BUILDING, MONTREAL.
Paristone Plaster was used exclusively in this building

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

TORONTO. MONTREAL. WINNIPEG. VANCOUVER.

BUILDING MATERIALS.

ASBESTOS

TRADE MARK.

PRODUCTS. J-M ASBESTOS STUCCO.

For complete list of J-M Building Materials see our catalogue in Roofing Section.

J-M ASBESTOS STUCCO. J-M Asbestos Stucco is composed of pure Asbestos Fibres and uniformly ground Asbestos Rock, together with proper binding materials.

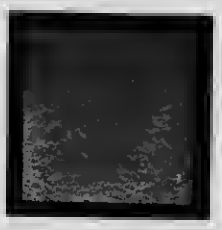
Any desired texture effect can be obtained with J-M Asbestos Stucco, from a float finish to a very rough cast or slap-dash. In prepared form it can be furnished in White, Gray and Buff.

ADVANTAGES. Sand, which is necessary in all other stuccos, contains vegetable matter and other foreign materials that not only cause stains and discolorations, but also prevent proper setting and make the stuccos liable to crack and flake off. As J-M Asbestos Stucco contains no sand or vegetable material, it dries a handsome, uniform colour, which lasts indefinitely without discoloring or flaking.

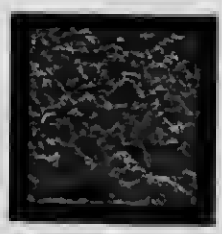
As a non-conductor of heat and cold, J-M Asbestos Stucco presents an important advantage in fuel saving. It keeps buildings warm in winter and cool in summer. And it positively prevents the sides of a building catching fire from adjoining conflagrations.

It is lighter in weight, spreads more evenly and smoothly, has a considerably greater covering capacity, and can be applied at a less cost of labour than sand and cement stuccos.

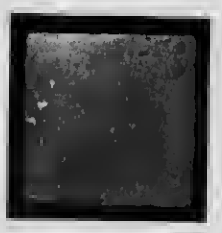
COVERING CAPACITY. When mixed according to directions, one ton of rough J-M Asbestos Stucco will cover approximately 40 square yards $\frac{5}{8}$ inch thick.



Float Finish



Rough Cast



Stipple Finish

A FEW OF THE HANDSOME FINISHES POSSIBLE WITH J-M ASBESTOS STUCCO

SPECIFICATIONS. Material to be used shall be THE CANADIAN H. W. JOHNS-MANVILLE COMPANY, LIMITED, Asbestos Stucco, mixed in the following proportions:

To two bags of Portland Cement, add twenty pounds of first quality hydrated lime, and, after mixing thoroughly, spread over five bags of Rough Asbestic. Turn twice and add sufficient water to make a good workable mortar, mixing thoroughly.

One bushel of plastering hair may be added to a ton of the material for the scratch coat over wire lath. No sand should be used.

When Applied Over Wire Lath and Expanded Metal.—Over sheathing boards apply horizontally one layer of THE CANADIAN H. W. JOHNS-MANVILLE COMPANY, LIMITED, Neptune Brand Hair Insulator, lapping one inch and tacking in place with waterproof side out. Over this, nail thin vertical furring strips or mason's lath, on twelve-inch centres, and over these apply horizontally lath or expanded metal. Lath shall be nailed to furring strips and lapped at least one inch and laps between furring strips shall be nailed with a galvanized staple sufficiently long to get a hold in sheathing boards. This will prevent any cracking occurring from lappings.

When Applied Over Terra Cotta Blocks, Concrete Blocks and Brick.—Surface to which scratch coat is to be applied should be free from foreign matter and should be thoroughly wet down before coat is applied. Surface of scratch coat, after it has been applied, should be thoroughly scored with a piece of lath or other tool, in order to provide a sufficient key for subsequent coats.

Should three coats be desired, a browning coat may be applied over scratch coat after it has sufficiently set to allow working upon, and before twelve hours after scratch coat has been applied, and should be left slightly rough in order to furnish stone key for finishing coat. Should only two coats be desired, finishing coat may be applied directly to scratch coat. Scratch and browning coats should be thoroughly wet down before another coat is applied, in order that they will not absorb moisture from the following coat. First coat shall be applied at least $\frac{3}{8}$ inch thick, and second and finishing coats not less than $\frac{1}{4}$ inch thick. Finish coat of stucco shall be of texture and colour approved by architect.

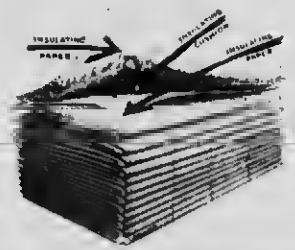
Finish coat work should, as far as possible, be applied to entire area of one side of structure at one operation. No finish coat work should be left in an incompleted condition. All work shall be carried to angles.

To insure satisfactory results, we are prepared to apply J-M Asbestos Stucco.

KEYSTONE HAIR INSULATOR. This sheathing is made of a heavy layer of cleansed and sterilized cattle hair, securely fastened between two sheets of strong, non-porous building paper.

The hairs cross and re-cross each other at every conceivable angle, forming small air chambers, and the paper on each side seals up the dead air imprisoned in the air chambers. This makes a material more effective than many layers of building paper for keeping a building warm in winter and cool in summer.

As a non-conductor of sound it has no equal when placed between floors and walls. It will not pack down or settle, will not dry out and split, will not rot or attract moisture, and will not carry flame like vegetable materials.



KEYSTONE HAIR INSULATOR

CROWN GYPSUM COMPANY, LIMITED

LYTHMORE, ONTARIO, CANADA.

MANUFACTURERS OF

GYPSUM PLASTERS AND GYPSUM PRODUCTS

TRADE MARK CROWN

HARD WALL PLASTERS.

PRODUCTS. "BEAVER" "THISTLE"—Neat cement plasters. Unsanded. To be mixed with sand on the work. Easily applied. Large covering capacity. Satisfactory results on lath, brick, terra cotta, plaster board or metal lath.

WOOD FIBRE PLASTERS.

"BEAVER" "THISTLE" Light, tough, elastic plasters of greater bulk, especially adapted to securing the most satisfactory results with one coat work. MORE STRENGTH WITH LESS WEIGHT. The most suitable of all plasters for use on plaster board.

CONCRETE PLASTER.

"CROWN" For plastering directly on the concrete. The most adhesive plaster for interior concrete walls and ceilings.

FINISHES.

"PEARL" A prepared WHITE FINISHING COAT ready for use with the addition of water alone. Takes the place of lime and Plaster of Paris mixtures and the incidental bother, delay and chance of defective work.

"CROWN WHITE" A hard, white, ready-to-use TROWEL FINISH for the highest grade of work on walls and ceilings. Especially adapted to imitation tile work in bath rooms. Non-staining. Extremely dense and smooth. A most satisfactory substitute for Keene's Cement.

PLASTER PARIS and FINISHING PLASTER.

STRENGTH DURABILITY FINENESS COLOUR — UNIFORM QUALITY.

INFORMATION. Further information in the way of specifications and other data will be gladly forwarded to anyone interested. We are especially desirous that architects, builders, and contractors become acquainted with the quality of our products.

STINSON-REEB BUILDERS' SUPPLY CO., LIMITED

EASTERN TOWNSHIPS BANK BUILDING,

MONTREAL, QUEBEC.

PRODUCT. "MEDUSA" WATERPROOFING COMPOUND. A dry powder to be thoroughly mixed dry with dry cement before sand and water are added, thus becoming an inseparable part of the concrete and rendering it impervious to water. It does not affect strength, setting or colour of Portland Cement.

METHOD OF USE. For most purposes from one to two per cent. of the weight of cement used will be found sufficient. This is equivalent to from $3\frac{1}{2}$ to 7 lbs. Medusa to one barrel of cement. Much depends on the proportion of sand, etc., employed, and on the kind of work done. For cisterns and reservoir linings, etc., which must be absolutely impervious, a larger amount should be used. Mixing is of the utmost importance.

NO. 2 GRAIN ELEVATOR - MONTREAL HARBOUR COMMISSIONERS

"MEDUSA" WATERPROOFING was used throughout the entire construction. This is one of the largest reinforced concrete elevators in the world. About thirty thousand pounds of Medusa Waterproofing was used in the work.

SWIMMING POOL, Y.M.C.A., PORT ARTHUR, ONT.

"MEDUSA" used for Waterproofing.

CANADIAN INSPECTION AND TESTING LABORATORIES

THE STINSON-REEB BUILDERS' SUPPLY COMPANY, LIMITED,
10th Floor Eastern Townships Bank Building, Montreal, P.Q.

CANADIAN EXPRESS BUILDING, MONTREAL, December 10th, 1913.

DEAR SIRS,

RE "MEDUSA" WATERPROOFING COMPOUND

Following your instructions, we have made the following tests with

"A" "Medusa" Waterproofing Compound, manufactured by the Manitoba Gypsum Company, Limited, Winnipeg, Man.
"B" "Medusa" Waterproofing Compound, manufactured by the Sandusky Portland Cement Company, Sandusky, Ohio.
"C" "Medusa" Waterproofing Compound, manufactured by the Stinson Reeb Builders' Supply Company, Limited, Montreal, P.Q.

SOUNDNESS AND SETTING

These tests were made according to the specifications of the Canadian Society of Civil Engineers, using one and two per cent. each of the above named compound and neat cement without compound for comparison. All these tests were satisfactory, showing no falling off in soundness and setting.

TENSILE TEST

Made according to Canadian Society of Civil Engineers' Specifications, using one and a half per cent. each of the compound with neat cement. The results tabulated below show no appreciable effect on the strength of the cement.

Briquettes, one cement to three of standard sand, with $1\frac{1}{2}$ per cent. "Medusa" Waterproofing.

TENSILE TEST AT 7 DAYS

Without Waterproofing.	"A"	"B"	"C"
218	230	240	214
248	241	234	219
230	240	255	248
Average 219	Average 243	Average 243	Average 241

TENSILE TEST AT 28 DAYS

Without Waterproofing	"A"	"B"	"C"
358	355	360	361
349	367	342	353
360	362	354	366
Average 361	Average 361	Average 359	Average 360

ABSORPTION AND PERCOLATION

Tests were made with Permeability Testing Apparatus, as supplied by the Humboldt Company, under one water pressure of an average of 45 lbs. per square inch, using briquettes of one of cement to three of standard sand, containing one and two per cent. each of "Medusa" Waterproofing Compound. These briquettes, after maturing, some for 7 days and some for 28 days, were subjected to water under pressure, as stated above, of 45 lbs. per square inch. The briquettes were weighed before and after tests. No water percolated through the briquettes, and, when broken, the briquettes did not show any penetration of the water, the increase in weight of the briquettes being practically nil, showing that the briquettes had not absorbed any water, and that the waterproofing effect of the Compound was very effective.

Concrete blocks, with an aggregate of 1 cement, 2 sand and 4 crushed stone of $\frac{3}{4}$-in. size, with an addition of 1 and 2 per cent. of the "Medusa" Waterproofing Compound manufactured by the Stinson Reeb Builders' Supply Company, Limited, were made and subjected to a water pressure of 45 lbs. per square inch for 24 hours. This test was made on blocks which had matured for 28 days. These blocks did not show any increase in weight after this test. Upon being crushed, they broke at an average pressure of 2,104 lbs. per square inch, superficial area, and showed no sign of the water penetrating the concrete, the waterproofing being thoroughly effective.

In conclusion, we are pleased to state that the addition to concrete of "Medusa" Waterproofing Compound has no deleterious effect, and the waterproofing of the concrete—if the compound is thoroughly mixed with the cement—is very complete.

Yours very truly,

CANADIAN INSPECTION AND TESTING LABORATORIES, LIMITED,
By DR. G. HERZBERG, Director of Cement Laboratories.

DOMINION GYPSUM COMPANY LT'D.

MANUFACTURERS OF

"PEERLESS" BRANDS OF CEMENT WALL PLASTER.

GENERAL OFFICE AND MILL:
WINNIPEG, MAN.

QUARRIES:
GYPSUMVILLE, MAN.

PRODUCTS.

"PEERLESS" WOOD-FIBRE PLASTER.—Light of weight and a non-conductor of heat, sound and electricity on account of the shredded wood included.

"PEERLESS" HARD-WALL PLASTER.—Noted for its cov- ing quality and for its resistance to hard usage.

"PEERLESS" H ID-WALL PLASTER, UNFIBRED. Can be used as a finishing coat, but is particularly adapted for Carpet Float or Sand Finish.

"PEERLESS" IVORY FINISH. When mixed with lime putty makes a beautiful finishing coat.

"PEERLESS" PREPARED FINISH.—Requires no lime and is ready to us when mixed with water.

"PEERLESS" PLASTER OF PARIS —"PEERLESS" STUCCO.—Is made from a high-grade selected Gypsum rock.

"PEERLESS" ASBESTOS PLASTER.

ARCHITECTS' SPECIFICATIONS FOR THE USE OF "PEERLESS" BRANDS OF CEMENT WALL PLASTER.

WOOD-FIBRE. Mixed in proportion of one of plaster to one and a half of sand, will require ten to eleven hundred pounds of plaster to cover 100 square yards on wood or metal lath. On terra cotta or brick walls, nine hundred pounds will cover 100 square yards.

HARD-WALL. Mixed in proportion of one of plaster to two of sand, will require eight to nine hundred pounds of plaster to cover 100 square yards on wood or metal lath. On terra cotta or brick, increase the proportion to three parts sand to one part plaster and the covering capacity will be proportionately greater.

HARD-WALL, UNFIBRED. Mixed in proportion of one of plaster to one of sand, when used for Carpet Float or Sand Finish, will require 200 pounds of plaster to cover 100 square yards.

IVORY FINISH. Mixed in proportion of one of Finish to two of lime putty for trowel finish, will require about 100 pounds of Finish to cover 100 square yards.

PREPARED FINISH. When mixed with water, is ready to use and requires no lime. Four hundred pounds of Finish will cover 100 square yards.

GROUNDS. For Wood Lath: to be 5-8 in. to $\frac{3}{4}$ in., preferably $\frac{3}{4}$ in.

On Brick or Tile: $\frac{1}{2}$ in.

On Wire Lath or Expanded Metal: $\frac{1}{2}$ in. over face of lath.

On Plaster Board: 3-8 in.

WOOD LATH. No. 1 white pine or spruce, free from black knots, sap or bark, spaced one-quarter inch apart, also end spaced the same distance and well nailed. Green or half-green lath preferable. If lath are dry, thoroughly soak them three or four hours before u .

SPRAYING. All porous backing, including lath, tile and brick, to be sprayed with water before plastering.

SAND. To be clean, sharp sand.

PLASTER. To be "PEERLESS".....manufactured by the DOMINION GYPSUM COMPANY LT'D., and to be ganged and applied according to their printed instructions.

CATALOGUE. With full instructions how to use all Gypsum Products, and particularly "PEERLESS" CEMENT WALL PLASTER, will be mailed on application.

INTERNATIONAL VARNISH CO., LIMITED

TORONTO. WINNIPEG.

CANADIAN FACTORY OF

STANDARD VARNISH WORKS: NEW YORK, CHICAGO, LONDON, BERLIN, BRUSSELS.

PRODUCTS.

ARCHITECTURAL FINISHES AND STAINS. "Elastica" No. 1 (Exterior), "Elastica" No. 2 (Interior), "Elastica" Floor Finish, "Flattine" Cabinet Finish, "Kleartone" Flat Varnish, "Satinette" White Enamel, "Kleartone" Stains, Oil, Spirit and Acid.

"ELASTICA" No. 1.

FOR EXTERIOR WORK. For finishing front doors and all classes of housework exposed to the weather, where greatest durability is requisite. Dries free from dust in ten to twelve hours, and hardens sufficiently in about five days to admit of being rubbed. Possesses the maximum elasticity attainable in any finish or varnish. Produces a beautiful lustre over natural, painted or grained woods which may be cut down with pumice stone and water to a dull finish. Does not scratch or mar white, and resists atmospheric influences better than any other varnish or finish in use for the purpose.

"ELASTICA" No. 2.

FOR INTERIOR WORK. Extreme paleness and durability are distinguishing features of this varnish. It works with surprising freedom, covers the maximum surface area, and produces a brilliant, permanent finish. Dries free from dust in seven to nine hours and to rub perfectly in three to four days. Can be cut down with pumice stone and water to a dull finish. Can also be given a brilliant piano polish.

Especially recommended and adapted for finest trim work in palatial residences, fine bank, office and hotel buildings, and wherever the finish is required to be the very best possible.

"ELASTICA" FLOOR FINISH.

Combines quick and hard drying properties without sacrificing elasticity or durability, and protects the wood under severest wear and washing. Does not mar, scratch white or spot. Works easily; dries dust free in four to six hours, hardens over night and can be rubbed. On painted or old floors, linoleum or oil cloth, one coat is sufficient. Remove all grease and dirt from floors before applying. Reduce with turpentine when necessary.

"FLATTINE" CABINET FINISH.

FOR FLAT OR WATER RUBBED EFFECT. Works with great freedom and surfaces well. Produces an even and full dead or flat finish without rubbing. Dries loose hard over night and is exceedingly tough and durable. Contains no wax and is the only perfect dead varnish. Two coats produce a rubbed effect finish on new work; one coat only is required for old work.

"KLEARTONE" FLAT VARNISH.

Dries with a flat or rubbed effect. Contains no wax or pigment. Does not need stirring. Dries hard over night and is exceedingly tough and durable.

It is waterproof, and, unlike most flat varnishes, can be used over mahogany or mahogany-stained surfaces without clouding same.

"SATINETTE" WHITE ENAMEL.

The perfection of white enamel. Works freely under the brush; is quick drying, combining elasticity, hardness and durability; does not turn yellow. Is extremely durable. If too heavy on account of having become chilled, place in a pail of hot water for a short time, and, if in consequence of evaporation, reduce a trifle with spirits turpentine.

An important feature of our "Satinette" Enamel is that owing to its specialized manufacture, it is adaptable for either Exterior or Interior use, and gives equally successful results.

"SATINETTE" INTERIOR WHITE ENAMEL (FLAT).

Produces a durable and smooth flat white enamel finish. Works freely under the brush, hardens quickly, and does not turn yellow. Intended for the final coat over a surface properly prepared. If too heavy on account of having become chilled, place in a pail of hot water for a short time, and, if in consequence of evaporation, reduce a trifle with spirits turpentine.

"KLEARTONE" OIL STAINS.

Olive Green, Sage Green, Early English, Dark Brown, Light Brown, Walnut, Light Oak, Dark Oak, Weathered Oak, Tuna Mahogany, Dark Mahogany, Light Mahogany, Cherry. "Kleartone" Oil Stains have been brought to a high degree of perfection, developing and enhancing the beauty of the wood over which they are applied. They are uniform in shade, are easily applied, and will not affect the drying of succeeding varnish coats.

"KLEARTONE" SPIRIT STAINS.

Dark Mahogany, Light Mahogany. "Kleartone" Spirit Stains, which are specially designed for use on mahogany, produce effects that no other maker has hitherto been able to accomplish. For depth, clearness and tone they are unparalleled, and are highly commended by the leading painters and decorators.

"KLEARTONE" ACID STAINS.

Silver Gray for Oak and Maple; Light and Dark Mahogany for Birch, where surfaces exposed to the sun and weather; Light and Dark Fumed and Holland Blue for Oak. "Kleartone" Acid Stains are not injurious to the wood, and beautiful effects are secured by following our specifications.

CATALOGUE.

The following pages show actual photographic reproductions and results obtained on different kinds of wood treated with "Kleartone" Stains. The accompanying description indicates the manner of finishing. Where samples of these stains on specific woods are desired, they will be furnished on request, or should the architect desire a particular finish not illustrated in the following panels, we shall be glad to submit special samples, with specifications, thus assisting the architect in obtaining the desired finish.

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THE PERFECT *Satinette* WHITE ENAMEL

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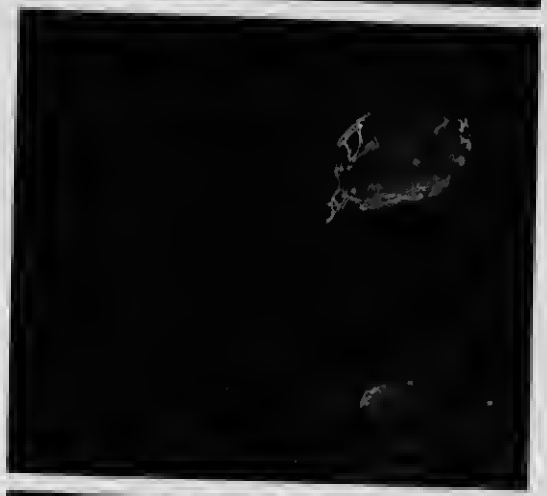

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WEATHERED OAK, KLEARTONE OIL STAIN.

On A Yellow Pine, B Quartered Oak, C Cypress

The Stain was brushed on the unfilled wood and allowed twelve hours to dry. The wood was then rubbed with one coat Klearton White Shellac and two coats Flattone Cabinet Finish.

EARLY ENGLISH, KLEARTONE OIL STAIN

On D Yellow Pine, E Quartered Oak, F Cypress.

The Stain was brushed on the unfilled wood and allowed twelve hours to dry. The wood was then rubbed with one coat Klearton White Shellac and two coats Flattone Cabinet Finish.

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SAGE GREEN, KLEARTONE OIL STAIN

On A Yellow Pine, B Quartered Oak, C Cypress.

The Stain was brushed on the untilled wood and allowed twelve hours to dry. This was followed with one coat Klearlum White Shellac and two coats Flattine Cabinet Finish.

OLIVE GREEN, KLEARTONE OIL STAIN

On D Yellow Pine, E Quartered Oak, F Cypress.

The Stain was brushed on the untilled wood and allowed twelve hours to dry. This was followed with one coat Klearlum White Shellac and two coats Flattine Cabinet Finish.

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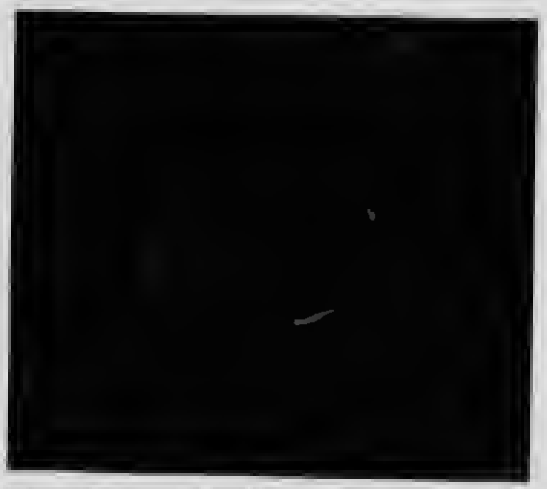

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KLEARTONE ACID STAINS

Silver Gray on A Bird's-Eye-Maple, B Quartered Oak.

The Stain was brushed on the unfilled wood and allowed to dry three hours to dry. This was followed with one coat Kleartone Silver Gray Coater and two coats Flattone Cabinet Finish.

Holland Blue on C Quartered Oak.

Finished with one coat Holland Blue Kleartone Acid Stain, one coat Kleartone White Shellac filled with white paste filler. Second coat Kleartone White Shellac, two coats White Polishing Varnish. Last coat rubbed.

KLEARTONE ACID STAINS.

D Dark Fumed Oak, and E Light Fumed Oak on Quartered Oak

The Stains were brushed on the unfilled wood and allowed to dry three hours to dry. This was followed with one coat Kleartone White Shellac and two coats Flattone Cabinet Finish.

English Oak F Kleartone Oil Stain on Quartered Oak.

The Stain was brushed on the unfilled wood and allowed to dry three hours to dry. This was followed with one coat Kleartone White Shellac and two coats Flattone Cabinet Finish.

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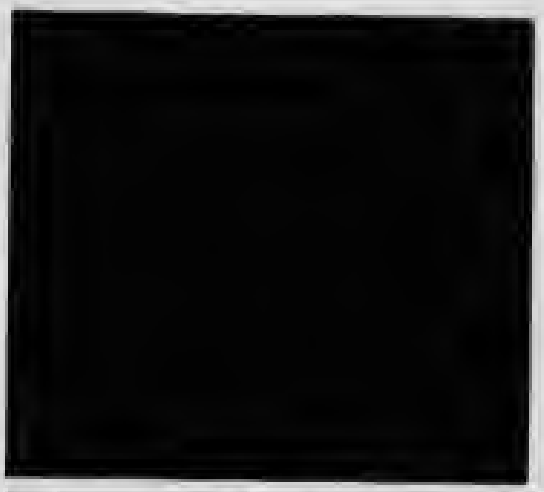

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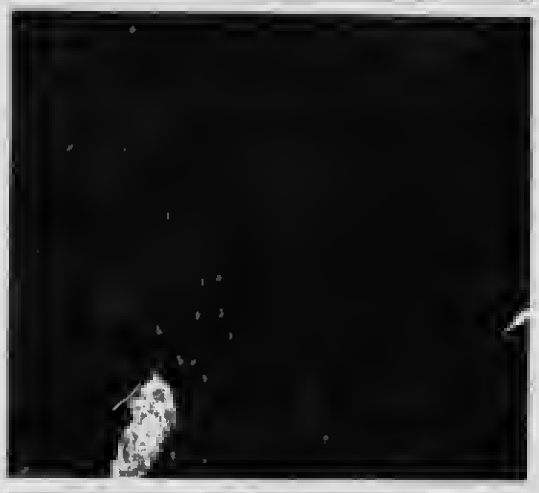

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KLEARTONE OIL STAINS.

Dark Forest Green on A Quartered Oak, B Yellow Pine.

Flemish Oak on C Quartered Oak

The Stain was brushed on the unfilled wood and allowed twelve hours to dry. This was followed with one coat Klearlone White Shellac and two coats Klearlone Cabinet Finish.

KLEARTONE OIL STAINS.

D Bog Oak on Quartered Oak, E Pollard Oak on Quartered Oak.

The stains were brushed on the unfilled wood and allowed twelve hours to dry. This was followed with one coat Klearlone White Shellac and two coats Klearlone Cabinet Finish.

Extra Dark Mahogany Acid Stain on F Birch.

One coat Extra Dark Mahogany Klearlone Acid Stain one coat Klearlone Mahogany Coater, two coats Elastica No. 2 Last Coat rubbed.

Note.—Use Klearlone Mahogany Coater over Klearlone Mahogany Stains as the Coater enriches the colour of the Stain and prevents fading. On Birch always use Klearlone Mahogany Acid Stain

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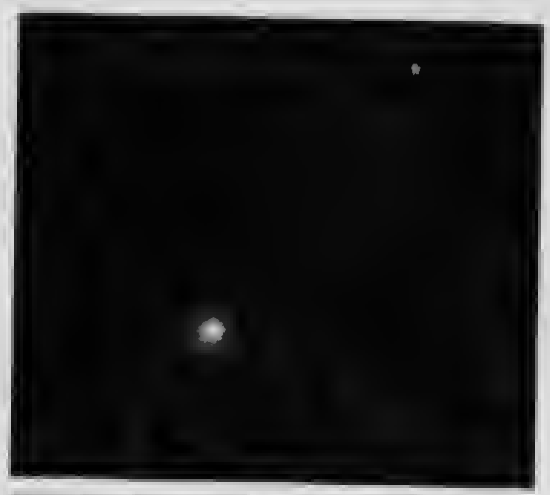

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WALNUT, KLEARTONE OIL STAIN.

On A Yellow Pine, B Birch, C Cypress.

The Stain was brushed on the untilled wood and allowed twelve hours to dry. This was followed with one coat Klearlume Orange Shellac and two coats Flatlac Cabinet Finish.

KLEARTONE OIL STAINS.

Cherry D on Yellow Pine. One coat Cherry Klearlume Oil Stain, one coat Klearlume White Shellac, two coats Elastica No. 2. Last coat rubbed.

Golden Oak E on Quartered Oak. One coat Golden Oak Klearlume Oil Stain, one coat Klearlume Orange Shellac, filled with Oak Antique Filler, two coats Elastica No. 2. Last coat rubbed.

Golden Oak F1 on Yellow Pine. One coat Golden Oak Klearlume Oil Stain, one coat Klearlume Orange Shellac, two coats Elastica No. 2. Last coat rubbed.

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LIGHT MAHOGANY, KLEARTONE OIL STAIN
On A Yellow Pine, C Cypress.

Finished with one coat Light Mahogany Klearfone Oil Stain, one coat Klearfone Mahogany Coater and two coats of Electrex No. 2 Last coat rubbed.

LIGHT MAHOGANY, KLEARTONE ACID STAIN ON B BIRCH

One coat Light Mahogany Klearfone Acid Stain, one coat Klearfone Mahogany Coater and two coats of Electrex No. 2 Last coat rubbed.

NOTE—Use Klearfone Mahogany Coater over Klearfone Mahogany Stains as the Coater enriches the colour of the Stain and prevents fading. On Birch always use Klearfone Mahogany Acid Stain.

DARK MAHOGANY, KLEARTONE OIL STAIN.
On D Yellow Pine, F Cypress.

Finished with one coat Dark Mahogany Klearfone Oil Stain, one coat Klearfone Mahogany Coater and two coats Electrex No. 2 Last coat rubbed.

DARK MAHOGANY, KLEARTONE ACID STAIN ON E BIRCH

One coat of Dark Mahogany Klearfone Acid Stain, one coat of Klearfone Mahogany Coater and two coats of Electrex No. 2 Last coat rubbed.

NOTE—Use Klearfone Mahogany Coater over Klearfone Mahogany Stains as the Coater enriches the colour of the Stain and prevents fading. On Birch always use Klearfone Mahogany Acid Stain.

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LIGHT OAK, KLEARTONE OIL STAIN.

On A Yellow Pine, B Quartered Oak, C Cypress.

The Stain was brushed on the [illegible] and allowed twelve hours to dry. This was followed with one coat Kleartone Orange Shellac and two coats Flattone Cabinet Finish.

DARK OAK, KLEARTONE OIL STAIN.

On D Yellow Pine, E [illegible], F Cypress.

The Stain was brushed on the [illegible] and allowed twelve hours to dry. This was followed with one coat Kleartone Orange Shellac and two coats Flattone Cabinet Finish.

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LIGHT BROWN, KLEARTONE OIL STAIN.

On A Yellow Pine, B Birch, C Cypress.

The Stain was brushed on the untilled wood and allowed twelve hours to dry. This was followed with one coat Kleartone Orange Shellac and two coats Flatline Cabinet Finish.

DARK BROWN, KLEARTONE OIL STAIN.

On D Yellow Pine, E Birch, F Cypress.

The Stain was brushed on the untilled wood and allowed twelve hours to dry. This was followed with one coat Kleartone White Shellac and two coats Flatline Cabinet Finish.

PINCHIN, JOHNSON & CO. (Canada), LIMITED

MANUFACTURERS OF THE FAMOUS BRITISH BRANDS

MINERVA PAINTS AND PAINT SPECIALTIES, VARNISHES, ETC.

FACTORIES:

TORONTO, CANADA LONDON, ENG.

ESTABLISHED 1834

PRODUCTS

We manufacture a complete line of PAINTS AND PAINT SPECIALTIES, WOOD FILLERS, ENAMELS AND VARNISHES, under the supervision of Practical and Technical Experts. ALL CANS CONTAIN FULL IMPERIAL MEASURE.

Specific information in regard to our products, descriptive books, colour cards and samples will be furnished on application. Our line is extensive, covering all protective and decorative requirements, and each article is of the superior quality that will permit the architect to specify Minerva Brand with confidence.

MINERVA PURE READY PREPARED PAINT

FOR EXTERIOR AND INTERIOR WORK. Made in 48 shades, exclusive of Outside, Inside and Flat White, Exterior and Interior Black, and Light and Dark Primer. Combines in correct proportions: Pure White Lead, Pure Oxide of Zinc, Pure Linseed Oil, Pure American Turpentine, and sufficient Pure Dryer to insure best results.

OUTSIDE WHITE. A better white paint for outside use and all exposed surfaces cannot be made. It is the most durable and economical white painting material for exterior woodwork on the market. After being thoroughly stirred, it is ready for application.

INSIDE WHITE. Made exclusively for interior use. Is durable, economical, and produces an exceptionally white oil gloss finish that can be washed.

MINERVA GALVANIZED IRON PRIMER.

A FIRST COATER FOR GALVANIZED IRON WORK. Owing to the surface of Galvanized Iron, it requires special treatment in order to prevent subsequent coats from coming off. By the use of Minerva Galvanized Iron Primer this is overcome. The Primer is applied directly to the metal surface and over it can be applied Paint in any colour.

MINERVA GRAPHITE PAINTS

FOR IRON AND STEEL SURFACES. A composition of pure inert Graphite and Linseed Oil. It prevents rust and is unaffected by gases and is heat-resisting, owing to the elastic qualities. It is the most suitable, economical, and durable coating for structural iron work, bridges, elevators, smokestacks, and metal work of all kinds.

MINERVA ENAMEL.

AN ENAMEL OF EXCEPTIONAL MERIT, unsurpassed for covering capacity and fullness, which can always be relied upon. Made in 32 shades, exclusive of Exterior, Interior, and Flat White, so that any scheme of decoration can be carried out with materials of assured quality.

MINERVA SCHOOL BOARD SLATING

A SUPERIOR MATERIAL FOR MAKING AND REFINISHING BLACKBOARDS. It produces a non-oily surface, is very durable, and will not crack or chip off. Made in two shades—Black and Green.

FRESCONETTE.

A Washable Flat Wall Finish, durable and sanitary, for use in homes, hospitals, and public buildings. Designed to replace the unsatisfactory and unsanitary wall coatings heretofore used.

While Minerva FRESCONETTE dries with a perfectly flat finish, it is still an oil paint, which produces a non-absorbent, permanent sanitary surface that can be repeatedly washed with soap and water, and repainted at any time without the necessity of removing the old coating.

Minerva FRESCONETTE can be used on walls of rough, smooth or sand finish, plaster, woodwork, metal, concrete or cement. It can also be used over burlap or wall paper. It is made in 16 pleasing shades, from which combinations can be made suitable for any scheme of decoration, and where a more elaborate scheme of decoration is desired other than the mere distinction between frieze, wall and ceiling, any floral or geometrical design can be applied by using the different shades as fresco colours.

SPECIFICATIONS.

METHOD OF APPLICATION.—Stir Minerva FRESCONETTE thoroughly from the bottom of the can to a uniform consistency, which should be that of thick cream. If thinning is necessary, use Pure Spirits of Turpentine only—do not use Benzine. Apply with a good, broad, flat brush, and do not finish with vertical or lengthwise strokes, but with cross-hatching.

COVERING CAPACITY. One gallon of Minerva FRESCONETTE will cover approximately 400 sq. ft., two coats to the gallon or 200 sq. ft. on rough plaster. This depends, of course, upon the condition of the surface over which it is applied.

NEW OR OLD PLASTERED WALLS AND CEILINGS. The surface must be clean and free from grease and dirt, loose paint or paper removed. Sandpaper all lumps and roughness to a smooth, even surface; fill all cracks and holes flush and even. Then apply Minerva FRESCONETTE Wall Size tinted with the desired shade of Minerva FRESCONETTE, using three quarts of Minerva FRESCONETTE Wall Size to one quart of Minerva FRESCONETTE. Should any spots be visible after this first or priming coat becomes thoroughly dry, which usually takes from 24 to 48 hours, depending upon the condition of the surface, it is advisable to give these spots another coat in priming. Then, when the priming is thoroughly dry, apply two coats of Minerva FRESCONETTE, allowing at least 48 hours between coats. Two coats of Minerva FRESCONETTE over the priming coat will produce excellent results, but in some cases a third coat is advisable.

CEMENT, CONCRETE OR BURLAP. Should first be treated with Minerva FRESCONETTE Wall Size tinted with Minerva FRESCONETTE of the desired shade. Then follow specifications given for finishing on new or old plastered walls and ceilings.

NEW WOODWORK. Coat all knots and pitchy spots with Shellac, then use one quart each of Raw Linseed Oil and Pure Spirits of Turpentine and one half pint of Light Japan Dryer to each gallon of Minerva FRESCONETTE for the first or priming coat. Then apply two coats of Minerva FRESCONETTE, as it comes from the can, allowing each coat 48 hours for drying before succeeding coat is applied. Sandpaper lightly between coats with No. 00 sandpaper.

OLD WOODWORK. Clean the surface thoroughly. Sandpaper old paint to a smooth, even surface, removing all loose paint. Then apply two coats of Minerva FRESCONETTE, allowing each coat 48 hours for drying before succeeding coat is applied. Sandpaper lightly between coats with No. 00 sandpaper.

APPLICATION OVER OLD WALL PAPER. When the surface is in good condition, two coats of Minerva FRESCONETTE applied over wall paper will produce a pleasing and handsome effect. For the first coat, thin Minerva FRESCONETTE with one quart of Pure Spirits of Turpentine to each gallon of Minerva FRESCONETTE, apply and let dry for 48 hours, then apply the second coat and allow it to dry.

MINERVA ART AND CRAFT STAINS

Penetrating Stains that produce rich and lustrous effects, unsurpassed for beauty and truth of tone. By their use any depth of tone of any kind of wood can be faithfully reproduced. Sample panels and complete specifications furnished on request.

MINERVA SHINGLE STAIN.

A Creosote Stain for use on shingles. It is a perfect wood preservative. It penetrates deeply into the surface. Economy, durability, and permanency of shade are the chief characteristics of this product.

STRUCTURAL WATER-PROOFING COMPOUNDS.

SEE SPECIFICATIONS AND DIAGRAMS on pages 39, 40 and 41.

SAMUEL CABOT, INC.

MANUFACTURING CHEMISTS,

BOSTON, MASS., U.S.A.

CANADIAN AGENCIES:

MONTREAL Seymour & Co., 13 St. John Street.
CALGARY & EDMONTON Canadian Equipment & Supply Co.
TORONTO The Andrew Muirhead Co., 82 Bay Street.
OTTAWA L. S. Macon, Central Chambers.
HALIFAX Frank A. Gillis & Co.
QUEBEC—Arthur Laurent.
VANCOUVER—Henry Darling.
WINNIPEG—Braid & McCurdy.
SASKATOON—Saskatchewan Supply Co.

PRODUCTS. Inventors and sole manufacturers of Cabot's "Creosote" Shingle Stains, Sheathing and Deadening "Quilt," "Conservo" Wood Preservative, Waterproof Brick and Cement Stains, Damp-proofings, Protective Paint, etc.

CABOT'S "CREOSOTE" SHINGLE STAINS. The Cabot Stains are the original Creosote Stains invented by Samuel Cabot over twenty-five years ago, and the beauty and variety of their soft, artistic colouring effects has made the wide vogue of the shingled house possible. They have been used all over the world, and are acknowledged to be "the standard shingle stains."

They are beautiful, durable, preservative and economical, and are the only genuine Creosote Wood-preserving Stains.

APPLICATION OF SHINGLE STAINS. The Stains are sold ready for use, and no thinning or adulteration should be permitted. The shingles can be dipped before laying, or the Stain can be applied with a brush after laying. Dipping more thoroughly preserves the shingles and prevents unstained wood from showing, if the shingles shrink after laying. Brush coating takes less stain but more labour. The colouring effect is about the same in either case. If applied with a brush, two coats should always be used, because one coat is not a thorough job in any material. After dipping, a brush coat on the laid shingles is worth while, as it takes but little stain, covers any raw spots, and adds to the durability.

Stirring. The Stains should be kept thoroughly stirred, and should be applied to dry wood to insure uniform and durable results.

COVERING CAPACITY. One gallon to 100 sq. ft., two brush coats; 2½ to 2¾ wine gallons to 1,000 shingles dipped two-thirds; 3 gallons for dipping and afterwards brush coating.

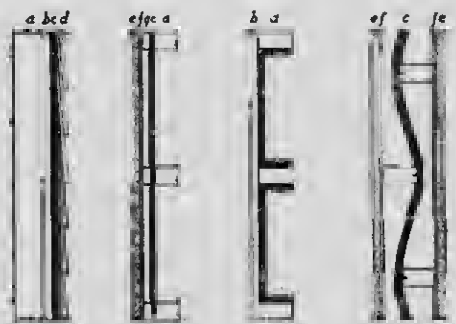
SPECIFICATION FOR SHINGLE STAINS. Specify "Cabot's 'Creosote' Shingle Stains, in original packages bearing Cabot's trade mark. Colour to be selected by architect or owner." State whether shingles are to be dipped or brush coated, or both.

SAMPLES. Samples on shingle cedar, showing all the regular colours, will be sent on request.

CABOT'S SHEATHING AND DEADENING "QUILT."

PURPOSES. For heat insulation in dwellings, cold stores, ice houses and all buildings where uniform temperature is desired, and for deadening sound in schoolhouses, flats, hotels, hospitals, lodges, etc.

"QUILT" is a scientific non-conductor of both heat and sound. It consists of a matting of *cured eel-grass* (Zostera Marina) stitched between two layers of remarkably strong Kraft paper. The long ribbon-like fibres of eel-grass cross each other at every angle, and form within each layer of "Quilt" innumerable minute cells of "dead" air, making a soft, elastic cushion which is a wonderfully effective non-conductor. It is therefore not a mere felt or paper, but has a structure like a bird's plumage, that is, first a layer of matter, then a layer of dead air. These dead-air cells prevent the transmission of heat, and they break up and absorb sound-waves. One layer of "Quilt" is equal to more than forty of the cheap building papers.



a a-Studding b b-Boards. c c-"Quilt." d-Shingles e e-Plaster f-Laths g g-Furring Strips. h h-Floor Timbers i-First Flooring k-Finish Flooring

APPLICATION "QUILT." "Quilt" can be applied in any way that felt or paper can, but a few methods are shown in these drawings: Figs 1 and 3 show methods of heat insulation in dwellings, etc. Figs. 2, 4 and 5 show methods of sound-deadening in partitions and floors.

CONTINUED ON NEXT PAGE

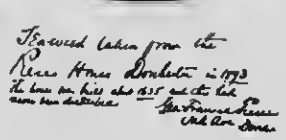
WHY EEL-GRASS?—"Quilt" is made of eel-grass because that substance more perfectly meets the requirements than any other known. (1) It has a long, flat fibre, and when felted, as we use it, these ribbons form the successive air-spaces which give "Quilt" its chief power, and which would be impossible with a round fibre; (2) Eel-grass is indestructible by decay,* and because of its saline origin and percentage of Iodine is repellent to insects and vermin; (3) It will not burn, as it is composed of Silicon in place of the Carbon of plants that grow in the air, and is therefore an efficient fire-retardant; (4) It is very tough and never loses its elasticity.

DECAY AND VERMIN-PROOF.

UNIN-FLAMMABLE.

OLD PIERCE HOUSE, DORCHESTER, MASS
Built about 1635

*The walls of the old Pierce House, Dorchester, Mass., were stuffed with eel-grass when the house was built, about 1635, and the grass is still in a perfect state of preservation. We have a sample of this 270-year-old eel-grass in our office as here shown



FAC-SIMILE OF LABEL ON BOTTLE SHOWN ABOVE

WATERPROOF CEMENT STAINS.

These Stains enter and seal the pores of cement, plaster or concrete, making them rain-proof, and producing beautiful colouring effects without weakening the cement. They sink into the surface, and form no skin, so that they cannot chalk, crack or peel like paints and other coatings. Being transparent, they show the variations of texture, tone and density of the concrete almost as perfectly as in its uncoloured state.

Made in ten regular colours—Moss Green, Red, Brown, Gray, Cream, White, Ivory White, Italian Pink, Lichen Green and Light Fawn; also Colourless—but practically any shade can be produced. One gallon covers from 100 to 250 square feet two coats, depending upon the surface.

WATERPROOF BRICK STAINS

For colouring and waterproofing brickwork these Stains are vastly superior to paint, from either the artistic or practical standpoint. For evening up off-coloured and mis-matched brick, or restoring the colour of old, faded and discoloured walls, they are unequalled.

They sink into the pores leaving the "matte" surface and texture of the brick unchanged, and they cannot crack, peel off, or grow shabby, as any surface coating, like paint, does. They make the brickwork permanently rain-proof, and the colours wear as long as any colours can, and are easily renewed. One gallon covers about 200 square feet, two coats, on the average brick.

COLOURS.—Light and Dark Brick-Red, Terra-Cotta, Brown, Cream, and White.

"CONSERVO" WOOD PRESERVATIVE.

For preserving all kinds of woodwork from decay, worms and insects.

At a cost of two or three cents per stick "Conservo" will almost double the life of piles, posts, sills, bridge, mine, wharf and dam timbers, and all kinds of planking. It is a high-boiling Coal Tar distillate compound, the result of twenty-five years of experience and research, and is as perfect a preservative as can be made with the present knowledge of the subject. It gives a butternut brown tone, and makes an excellent interior finish for stables, as it kills foul odours and prevents horses from "cribbing."

CABOT'S PLASTERBOND DAMP-PROOFING.

A permanent waterproof and adhesive coating for interior brick and concrete walls on which plaster can be laid directly without furring or lathing. It forms a perfect bond between wall and plaster. One gallon covers 80 to 100 square feet, two coats.

CABOT'S STONEBACK WATER-PROOFING.

For stone, brick or concrete walls, above or below grade. Prevents staining of delicate stone. Elastic and permanent. One gallon covers 80 to 100 square feet, two coats.

CABOT'S PROTECTIVE PAINT.

A chemically pure pitch paint, thoroughly clarified and refined, which protects iron and steel from rust, electrolysis and corrosion. One gallon covers 300 square feet, two coats.

THE "R. I. W." DAMP-RESISTING PAINT COMPANY

(TOCH BROTHERS, NEW YORK).

ESTABLISHED 1848.

CANADIAN OFFICE: 201-202 MAIL BUILDING, TORONTO, ONT.
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INVENTORS AND MANUFACTURERS OF
TECHNICAL PAINTS, VARNISHES, COLOURS, WATERPROOFING MATERIALS, ETC.

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"R. I. W."

REMEMBER IT'S WATERPROOF

"R. I. W." No. 232.	A non-saponifiable bituminous compound, similar to a liquid gutta percha, for application to the inner surface of exterior brick or terra-cotta walls, on which plaster can be directly applied. "R. I. W." No. 232 saves the cost of furring and lathing, and renders walls to which it is applied vermin-proof, moisture-proof and stain-proof.
"R. I. W." No. 110.	For backing marble, granite, limestone, etc., to prevent staining and exclude dampness, as it prevents chemical action between the cement and stone.
"R. I. W." Marine Cement.	For damp-proofing exterior of foundation walls, below grade level; for water-proofing between decks of boats, and between floors of railroad cars; for paying seams, etc.
"R. I. W." Insulectric No. 5.	A quick-drying paint for all kinds of electrical insulating—armatures, transformers, storage batteries, etc. Is also used by traction railroad companies as a handrail, fender and trolley pole paint.
"TOCKOLITH."	A cement paint, ready for use, for the permanent protection of steel, iron or metal against corrosion. "Tockolith" must always be second-coated with one of our "R. I. W." Damp-Resisting Paints, Structural Steel or Bridge Paints.
"R. I. W." No. 112.	For the second coat on structural steel—over "Tockolith" to prevent electrolysis. Also used for painting brine and condenser pipes and interior iron and woodwork.
"R. I. W." No. 49.	This paint used over Tockolith, furnishes a perfect protection against the action of locomotive gases, acid and other fumes to which railroad bridges and viaducts are subjected. Is also an ideal paint for fire escapes, stacks and other exposed metal surfaces.
"LIQUID KONKERIT."	A cement paint, ready for use, for application to the exterior of brick, stone, cement or concrete walls, above grade level, to prevent the penetration of dampness, and at the same time give the walls a uniform appearance. Is also used on the interior of such walls as a decorative finish, when plaster is omitted. Is made in white, also in five standard shades, but can be made to match any colour desired.
"CEMENT FILLER" AND "CEMENT FLOOR PAINT."	The use to which cement floors are subjected causes fine particles of silica and lime to float through the air and injure merchandise or machinery with which they come in contact. We were the first to discover that an organic acid resin (not a rosin) applied to cement floors or cement structures combines with the free calcium hydrate and forms a true calcium resinate. Inside of 24 hours this combination is complete, and the floor is then treated with another coat of the same material containing an inert pigment (Cement Floor Paint). The combined use of these materials will prevent cement floors from dusting up, and at the same time render them water-proof and oil-proof
"TOXEMENT" WATER-PROOFING CONCRETE.	Is a chemical compound, in powder form, which, when mixed in the proportion of from 2% to 3% of the amount of Neat Portland Cement used in the concrete or cement mortar, will render cement or concrete construction absolutely water-proof.

We shall be glad to furnish detailed information concerning any of the above-mentioned materials, which are manufactured in Canada. Our expert and advisory services are at the command of the trade.

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Distributors
The Johnston Paint and
Varnish Co., Limited,
Vancouver, B.C.

CONCRETE AND CEMENT COATING.

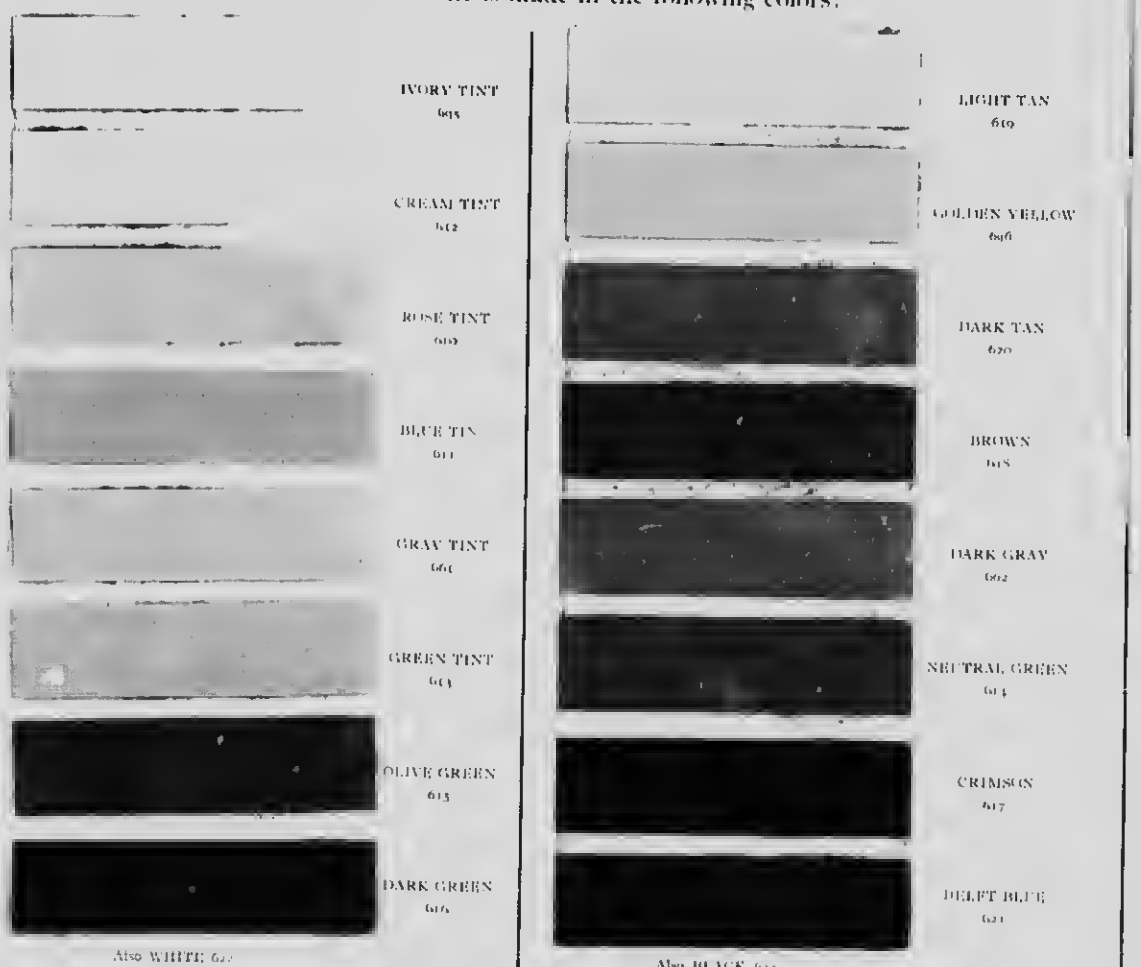
Renders surface impervious to moisture; prevents discoloration. It is alkali-resisting and forms hard-drying coating, to which dust or dirt does not adhere. Fourteen colors. Easily applied and beautifies the building on which it is applied.

MELLOTONE.

"Soft as the Rainbow Tints."

A flat finish for Interior Decoration of walls, ceilings and woodwork, producing a sanitary, washable velvet finish that is restful to the eye and appealing to a refined taste. Plaster, Burlap and Wall Board should be primed with Lowe Brothers' Sealcote mixed with "Mellotone" in the proportion of three quarts of Sealcote to one or more quarts of "Mellotone." Woodwork should be primed with one coat of "High Standard" Liquid Paint thinned with turpentine and used according to directions then allowed at least forty-eight hours to dry and harden before applying "Mellotone."

When desired, the finishing coat can be frescoed, picked out in gold, embellished in relief or otherwise. Mellotone is made in the following colors:



Also WHITE 622

Also BLACK 623

PUBLICATIONS.

"High Standard Paint Specifications" (a book of forms)—"Hints to Architects"—"Paint and Painting"—"Homes Attractive"—"Protective and Preservative Paint"—"Test by Technologists"—Architects' Mellotone Combination Book, Descriptive Mellotone Booklet and Common Sense About Interior Booklet; also color cards of each product, giving details of the best methods of usage. They may be secured upon request.

JAMES LANGMUIR & CO., LIMITED

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RESIDENCE OF MR. R. SECORD, EDMONTON, ALTA. LANGMUIR'S WILLOW GREEN SHINGLE STAIN USED ON ROOF. ARCHITECT, H. H. JOHNSON, EDMONTON, ALTA.

PRODUCTS. We manufacture SHINGLE STAINS, COLOURS IN OIL AND JAPAN, VARNISHES, ENAMELS AND FLOOR WAXES.

SHINGLE STAINS. Years of experience have demonstrated the fact that the LANGMUIR SHINGLE STAINS are non-fading in colour, possess an unsurpassed richness of tone, and are the best possible preservatives and beautifiers of wood. Set of samples and literature on request.

COLOURS OF SHINGLE STAIN. Moss Green, Hedge Green, Willow Green, Deep Sea Green, Spring Green, Red Cedar (Light), Red Cedar (Deep), Seal Brown, Slate, Rich Oak, Mission Finish, Silver Grey, Vermilion, Walnut Brown, and Russet Brown.

SPECIFICATION FOR SHINGLE STAINS. Shingles to be best grade of B.C. Cedar (or Ontario Cedar, or Pine), well dried, and stained by dipping for two-thirds of their length in LANGMUIR'S SHINGLE STAINS, or if laid before being stained two coats must be applied. The head of packages must be removed and the Stain stirred thoroughly before and during process of work.

COLOURS IN OIL AND JAPAN. We manufacture a full line of colours in oil and japan for the exacting decorator and painter, which are unsurpassed for strength, richness of tone and fineness of grinding. The results obtained by using the Langmuir colours are remarkable for clearness of tone and smoothness of finish.

VARNISHES. We manufacture a complete line of Varnishes, including Amberine, for both interior and exterior finish, Hard Oil and Elastic Oak, and would specially commend the Amberine Varnish, both interior and exterior, for particular work and where fine results are desired.

EXTERIOR ENAMELS. These Enamels are specially made to resist changes in temperature and to withstand the effects of severe exposure. They are particularly desirable for porches and verandahs. Are free flowing, slow setting, and are unsurpassed for whiteness.

SPECIFICATION FOR OUTSIDE ENAMELS. First a priming coat of Langmuir's Pure White Lead; follow this with a second coat of Pure White Lead, thinned with equal parts of raw linseed oil and turpentine, adding a small portion of pale drying japan; third coat Langmuir's Inside Flat Finish thinned with turpentine only.

INSIDE FLAT FINISH. A Lithopone White ground in refined linseed oil and pale japan. Thinned with turpentine, it produces a beautiful satin finish. It can be thinned with part oil and part turpentine for gloss finish. Is whiter, covers better, is non-poisonous, and for all interior purposes is superior to white lead.

FLOOR VARNISH. We manufacture a special Varnish for floors, under the name of Adamantine Floor Varnish, which is remarkable for its wearing properties and hardness. A coat of Langmuir's Adamantine Floor Varnish laid over a floor which has been stained, filled and shellacked, will outwear any other product.

FLOOR WAX. Our Wax Finish for floors is made to meet the demand for a hard, high lustre finish; this Wax Finish is easily applied, sets quickly, and is readily brushed up to a bright surface, which steadily increases in hardness and wearing properties.

INTERIOR DECORATIVE STAINS. We manufacture a line of Interior Decorative Stains to enable the architect to obtain soft harmonious colour effects on interior woodwork. Sample sets on application. Colours include Red Browns, Yellow Browns, Soft Greens and Asphaltum effects, which are unsurpassed for clearness and richness of tone.

STURGEONS, LIMITED

TORONTO.

AGENTS WITH STOCKS IN
HALIFAX, MONTREAL, OTTAWA, HAMILTON, PORT ARTHUR, WINNIPEG, REGINA, CALGARY, EDMONTON, VANCOUVER

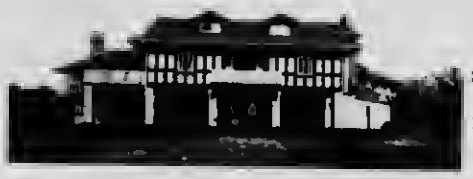
Soligmum

Wood preservative and stain made by Major & Co., Limited, Hull, England. Soligmum is manufactured from coal tar oil, supplied in reds, greens and browns.

Covering power: 1½ gals. will dip 1,000 shingles.
1 gal. will brush coat 150 sq. feet

SPECIFICATIONS: Shingles: To be dipped in Soligmum No. followed by a brush coat when laid, or to be brush-coated when laid with Soligmum No.
Half Timber Facia Boards to be given a coat of Soligmum No. before being placed in position, a second coat to be given on completion of job.

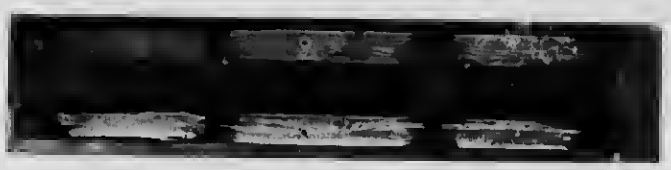
For interior finish please write us for specifications.



HOUSE OF MR. JAS. RAREY, OAKVILLE.

Shingles and Half-Timber treated with Soligmum.

Messrs. Burke, Horwood & White, Architects.



A TELEPHONE CROSS-ARM TREATED WITH SOLIGNUM

Note how the penetration is all around the sappy parts where it is most needed. Soligmum takes the points of least resistance.

BURWASH HALL, TORONTO

In these beautiful buildings Soligmum was used for interior staining. Messrs. Sproatt & Rolph, Architects.

PARIPAN

Washable lacquer Enamel made by Randall Bros., London, England, in 66 different colours, GLOSSY AND FLAT.

Recommended for plaster walls or woodwork, inside or outside.

General Specification for white work, for best jobs.

Two coats Paripan Filler or under coat, one coat Paripan Flat, one coat of Paripan Gloss or Flat. When colour is to be used, tint first, second and third coats.

Testimonials showing use of Paripan for 15 20 years. Further specifications on application.

This photograph is of one of the Toronto General Hospital wards, where Paripan was used on all the plaster walls and woodwork. Architects, Messrs. Darling & Pearson.

Because it was Hygienic, Paripan three-coat work was used on Toronto General Hospital.

"SOLPAR" WOOD-FINISHING PRODUCTS.

"Solpar" Woodfiller, Stains, Wax and Varnishes are unequalled.
Samples of finished wood on application.
Supplied in fumed, brown, Flemish, weathered oaks; also brown and red mahogany.
The outstanding feature of this stain is that the plain Solpar Stain has a beautiful finish of itself.

GENERAL SPECIFICATION: Mission Finish.—Apply one coat Solpar Stain, rub after three minutes.
Wax or Varnish.—Apply one coat Solpar Stain (one coat of filler for open grain woods), one coat shellac, then wax or varnish as desired.

PRATT & LAMBERT, INC.

VARNISH MAKERS, BRIDGEBURG, ONTARIO. OFFICE AND FACTORY, 32 COURTWRIGHT STREET.

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PRODUCTS

The following are special Varnishes for special purposes.
"61" FLOOR VARNISH, a finish for every floor.
"38" PRESERVATIVE VARNISH, for the highest grade of inside work.
SPAR FINISHING VARNISH, for exposed or exterior work.
"110" CABINET VARNISH, for general inside work.
ALCOLAC, a first coater for close-grained woods.
PALEST INTERIOR VARNISH, for work over delicate shades of fillers and stains.
HYGIENIC GLOSS FINISH, for hospitals, schools and institutions.
DULKOTE, an invisible preservative for a dull finish without rubbing.
OIL and ACID STAINS, in a variety of colours to produce every practical effect known to the finishing trade.
PASTE WOOD FILLERS of every colour.
VITRALITE, a permanent white enamel for inside and outside work.
EGG-SHELL VITRALITE, an egg-shell enamel for a dull enamel finish without rubbing.
P. & L. ENAMEL UNDERCOATING, for the second and third undercoats of enamel work.

WHY THESE SPECIFICATIONS ARE OF VALUE.

The service which any suggested specifications can render the architect depends to a great extent upon the experience back of such recommendations.

On the subject of interior finishing, PRATT & LAMBERT, Inc., occupy a position of unique importance and advantage. Not only are they with their European connections, the largest varnish industry in the world, and one of the oldest, but PRATT & LAMBERT were the first to enter the field of special architectural finishes, and the P. & L. Line has never been equalled for the beauty and variety of effects possible, or the durability of the finish.

FREE SAMPLE PANELS AND SPECIFICATION BOOK.

We would be glad to send you panels showing effects obtainable with Pratt & Lambert Stains, Fillers and Varnishes, also copy of our Specification Book, compiled especially for Architects.

SIXTY-FIVE YEARS' EXPERIENCE AT YOUR DISPOSAL.

The following specifications, of course, can give only in a general way the best methods to follow and the possible effects in the different kinds of finishing. Whenever, therefore, you desire any particular advice, information or suggestions, do not hesitate to ask us.

SUGGESTED SPECIFICATIONS.

EXTERIOR WORK
Open Grained Woods
One coat of Paste Wood Filler of desired colour
One coat of "61" Floor Varnish.
Two coats of Spar Finishing Varnish.
Close Grained Woods
One coat of Pratt & Lambert Oil Stain of the desired shade, if stained finish is desired. If not, stain is not required
One coat of "61" Floor Varnish
Two coats of Spar Finishing Varnish

FINE INTERIOR WORK—NATURAL—
Open Grained Woods—
One coat of Paste Wood Filler
Three coats of "38" Preservative Varnish, left in gloss, rubbed dull or polished
Close Grained Woods
One coat of "Alcolac"
Two coats of "38" Preservative Varnish, left in gloss, rubbed dull or polished

REGULAR RUN OF INTERIOR WORK—NATURAL
Open-Grained Woods
One coat of Paste Wood Filler
Two coats of "110" Cabinet Varnish, rubbed dull or left in gloss
Close Grained Woods
One coat of "Alcolac"
Two coats of "110" Cabinet Varnish, rubbed dull or left in gloss.

ONE TONE COLOUR EFFECTS
Close Grained Woods—
One coat of Acid or Oil Stain
Over acid stain, one coat of pure shellac. Over oil stain, one coat of Pratt & Lambert Alcolac
Two coats of Pratt & Lambert "38" Preservative Varnish, left in gloss or rubbed or polished.
Open-Grained Woods—
One coat of Pratt & Lambert Paste Wood Filler of the required shade. If desired depth of colour cannot be obtained with the coloured paste wood filler, a coat of Pratt & Lambert Acid Stain should be applied before the filler, followed when dry with a coat of paste wood filler of the same colour
Over acid stain and paste wood filler, one coat of pure shellac, two coats of Pratt & Lambert "38" Preservative Varnish, left in the gloss, rubbed or polished
Over paste wood filler only, three coats of Pratt & Lambert "38" Preservative Varnish, left in gloss, rubbed or polished

TWO TONE COLOUR EFFECTS
One coat of Acid Stain
One coat of Shellac
One coat of Paste Wood Filler, of a different colour than was the acid stain
One coat of Shellac
Two coats of P. & L. Palest Interior or "38" Preservative Varnish, left in gloss, rubbed or polished
NOTE—*Two tone effects* can be procured on open grained woods, such as oak, etc., only, and are produced by the combination of acid stains and a white or tinted paste wood filler of a different colour.
Example—For instance, the Pratt & Lambert Wood Finish Effect No 7220 is a combination of a dark brown, English Oak Acid Stain and Pratt & Lambert Special Green Paste Wood Filler. A thin coat of white shellac is applied over the acid stain, which is applied first. After this green filler is applied. This coat of shellac allows the filler to "take" only in the porous parts of the wood, and the result is a beautiful combination of the brown and green

INTERIOR WORK, DULL FINISH, NO RUBBING—
Dull Finish Without Rubbing
Use the foregoing specifications for specifications, substituting, however, one coat of "Dulkote" for the last case where "38" Preservative, Palest Interior Varnish or "110" Cabinet Varnish is specified, and omit rubbing.

ENAMEL WORK
Interior Wood, plain
One coat of lead
Two coats of White Enamel Undercoating
Two coats of Vitralite enamel, left in the gloss or rubbed
Exterior Work
Use coats of lead and oil instead of Enamel Undercoating.
Egg-shell or Dull Finish, Without Rubbing—
One coat of lead and oil
Two coats of P. & L. Enamel Undercoating
One or two coats of Egg-Shell Vitralite Enamel
NOTE—For metal work omit the coat of lead and oil.
Cement, Concrete, etc.—Exterior or Interior
One or two coats of Vitralite Cement Undercoating
One or two coats of Vitralite
NOTE—Although Vitralite is made only in the white, it may be brought to any tint by mixing in thoroughly the necessary quantity of the desired colour ground in Japan

FLOORS—
Oak and All Open-Grained Woods—
One coat of Paste Wood Filler
Two or three coats of "61" Floor Varnish
Maple, Pine and All Close-Grained Woods—
Two or three coats of "61" Floor Varnish

THE STANDARD PAINT CO. OF CANADA, LIMITED

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PRODUCTS.

We manufacture DAMP-PROOFING PAINTS, CONCRETE MASONRY AND CONCRETE FLOOR FINISHES, P. & B. PRESERVATIVE PAINTS, P. & B. ELECTRICAL INSULATING VARNISHES AND COMPOUNDS. (Full list of our products on pages 70 to 73.)

S.P.C. DAMP-PROOFING PAINT, BLACK.

For coating the inside surface of brick, masonry and concrete walls above ground. It forms a perfect bond between the wall and plaster, and avoids the necessity of furring and lathing. At the same time, it insures a thoroughly moisture-proof building. This paint should be used only where no actual water pressure is encountered. Copy of specifications for applying will be forwarded on request.

S.P.C. DAMP-PROOFING PAINT, CLEAR.

A colourless paint for application to the exposed surface of brick, masonry and concrete walls. A wall may be made damp-proof without affecting its colour. This paint, also, is adapted only for work above ground.

"IMP" BRAND WATERPROOF MASONRY FINISH.

Manufactured in the form of a primer and finishing coat. The primer contains a vehicle which acts as a cement and fills the voids of the masonry, and, at the same time, combines with the free alkali which is present with either concrete or the mortar used in laying up the brick wall, and which proves so destructive to ordinary paints. IMP Waterproof Masonry Finish coat is manufactured in White and various colours. Colour card on request.

"IMP" BRAND CEMENT FLOOR FILLER AND FLOOR FINISH.

IMP Cement Floor Filler (Clear) can be classed as a priming coat and neutralizes any alkali present in the floor. Manufactured without pigment, and in eight standard colours. It may be applied as a finishing coat. Dries to a glossy surface and will withstand hard wear and usage. Floors treated in this manner will not dust under service and are non-absorptive, waterproof, oil-proof and sanitary.

"P. & B." —"S.P.C." PRESERVATIVE PAINTS.

For wood, iron or metal, exposed or submerged. Marketed for over 25 years, under the well-known P. & B. and S.P.C. trade marks, and demonstrated unique for preservation against weather, water, heat, cold, acids, alkalies, fumes, gases, etc. Prevent rust, rot, corrosion, oxidation and guard against electrolysis. *Write for our book on PAINTS for full information.*

FLORIDA BREWING CO., TAMPA, FLORIDA.
P. & B. PAINT USED THROUGHOUT.

"P. & B." ELECTRICAL COMPOUNDS.

Recognized as *standard* for over 25 years on account of their insulating properties and effectiveness for the special purposes they are designed to meet. Made in two grades:

No. 1.—To be used where a light surface and deep penetration is desirable.

No. 2. For all general electrical purposes.

These Compounds protect wires, exposed or underground, against gases, corrosion, dampness or wet, and afford high insulating efficiency. Guard against electrolysis and leakage. *For full particulars, write for our book on INSULATION.*

"P. & B." ELECTRICAL INSULATING VARNISHES.

These varnishes are of two distinct classes, namely, Baking Varnishes, which harden by oxidation when subjected to artificial heat; and Air-Drying Varnishes, which harden or set by evaporation of the solvent. These may be sub-divided as follows:

CLASS 1. BAKING VARNISHES.—Entirely oil-proof. P. & B. Clear Baking Varnish, P. & B. Black Baking Varnish and P. & B. Baking Core-Plate Varnish.

CLASS 2. AIR-DRYING VARNISHES AND COMPOUNDS. Entirely oil-proof. S.P.C. Armature and Field Coil Varnish and P. & B. Black Finishing Varnish.

OIL-RESISTING.—P. & B. Black Air-Drying Varnish, P. & B. Air-Drying Core-Plate Varnish, and P. & B. Electrical Compound.

For fuller information, write for our book entitled "INSULATION."

WATERPROOFING PRODUCTS.

MEMBRANE FABRICS.

S.P.C. ASPHALT SATURATED FELT.—Made in the following weights:

No. 7, weighing 11 lbs. to the square. No. 10, weighing 14 lbs. to the square.
No. 12, weighing 20 lbs. to the square.

This Felt has unusually great tensile strength, and is guaranteed to contain no coal tar or coal tar products. Will not dry out or harden in storage or in service.

S.P.C. WATERPROOFING FELT.—Similar to S.P.C. Saturated Felt, but coated on one side with RUBBER-OID Gum. Made in the following weights:

No. 7, weighing 15 lbs. to the square. No. 10, weighing 20 lbs. to the square.
No. 12, weighing 25 lbs. to the square.

Will stand exposure to the weather without any further treatment.

S.P.C. SATURATED BURLAP.—Consists of best quality burlap impregnated with a compound of great moisture-resisting properties. Made up in any desired weights.

INTEGRAL COMPOUND—IMPERVITE.

IMPERVITE is a soluble paste composed largely of mineral Asphaltum, and is manufactured in a neutral colour and various tints, including Slate, Terra Cotta, White and Green. It is not a paint or a wash. It is an *integral* waterproofing compound that is mixed through and through the mortar or concrete, or applied as a facing. *IMPERVITE contains no soap or saponifiable constituents.* It does not detract from the strength of the mortar or delay its set. *Write for our booklet for fuller information.*

RONUK LIMITED

PORTSLADE ENGLAND.

SPECIALISTS IN THE MANUFACTURE OF FLOOR AND FURNITURE POLISH, AND IN THE TREATMENT OF FLOORS AND WOODWORK.

SHOW ROOM WITH RONUK TREATED FLOORS, PANELLING AND SPECIMEN FINISHES:

53 YONGE STREET, TORONTO HEAD OFFICE FOR CANADA.

DEPOT: 91-93 VOLVILLE SQ., MONTREAL

PRODUCT. RONUK FLOOR POLISH is a wax finish of unique composition, the purest ingredients only are used. Antiseptic materials are employed which possess the same germicidal properties as common disinfectants, but are without their disagreeable characters of smell and corrosive qualities. Ronuk is therefore particularly suitable for use in hospitals and public institutions. Ronuk has proved its superiority in England for the past 20 years as the best finish for floors and interior woodwork; it is fast gaining favour with Canadian Institutions, and is in use in a large number of Hospitals, Institutions, Clubs, Banks, Offices, etc., a list of which will be supplied on application.

RESISTS GERMS AND DIMINISHES DUST. Ronuk sinks in and fills the pores of the wood, instead of simply covering the surface, and forms a hard, bright, transparent finish, that will not "pick" or "roll." Ronuk Floor Polish, as well as filling up all crevices where germs and dust might accumulate, forms a surface so smooth and hard as to afford them no harbour.

FOR ANY WOOD. Ronuk can be applied to any hard or soft wood, and, in conjunction with Ronuk Special Stains, an infinite variety of beautiful effects can be produced. A Ronuk finish on any woodwork is silky and beautiful, and can be adapted to suit any taste.

LINOLEUM, CORK TILING. Ronuk is an excellent dressing and preservative for Linoleum, Cork Carpet and Tiles, Patent Flooring, etc.

SAVES LABOUR AND MATERIAL. To secure the best results, Ronuk should be applied sparingly, thus making it a very economical finish. One dressing only is sufficient, and it is kept in perfect condition by the application of a very little Ronuk from time to time. Ronuk floors never require scrubbing, or cleaning down with Turps or Benzine.

HOW TO APPLY. SOFT WOODS. A preliminary treatment with Ronuk Special Staining not only beautifies the wood, but prepares the surface to receive the Ronuk Floor Polish properly. Ronuk stains do not bleach or come away.

PASTE FILLER UNNECESSARY. HARD WOODS need a preliminary dressing with Ronuk Oil Stopping (Filler) or combined Filler and Stain, which fills up the pores of the wood and enriches its appearance.

The floor should be absolutely clean and dry. The Stopping or Stain is then applied and thoroughly rubbed in with a circular motion, wiped dry on the surface, and allowed to stand for 24 hours. Ronuk is then well rubbed into the wood and *allowed to dry for 2 hours*; it should then be brushed thoroughly into the wood with a weighted floor brush, and finally polished with a cloth under the weighted brush, and finished with a second clean cloth or flannel in the same way. Ronuk does not dry too rapidly when applied. It contains no benzine, which evaporates too quickly to carry a dressing right into the flooring. Ronuk sinks right into the wood and preserves and feeds it.

MAINTENANCE. Floors treated with Ronuk Floor Polish should have a very little Liquid Ronuk applied, brushed in and rubbed with the flannel from time to time as required to maintain a bright, clean surface.

LASTING QUALITIES. Floors treated with Ronuk will wear for years, improving from year to year.

CONTRACT WORK. Ronuk Limited will undertake or arrange with contractors to undertake the treatment of floors, panelling, interior woodwork, linoleum, etc., following the methods above specified.

Write us for any additional information, prices, estimates, etc.

THE HOBBS MANUFACTURING CO., LIMITED

MONTREAL. TORONTO LONDON WINNIPEG.

SOLE CANADIAN MANUFACTURERS

SIMPLEX SIDEWALK AND SKYLIGHT CONSTRUCTION
3 WAY SIDEWALK CONSTRUCTION.
NU-PLAN SIDEWALK CONSTRUCTION
BAR-LOCK SIDEWALK CONSTRUCTION.
QUICK SET SIDEWALK CONSTRUCTION.

PRODUCTS. SIMPLEX DOUBLE REINFORCED CONCRETE SIDEWALK, PRISM AND SIMPLEX SKYLIGHTS

No. 8a
inch Diameter

No. 6a
inch Plain Square

No. 6c
inch Square 1 Point Prism

No.
inch Square
Single Pyramid
Prism

No. 6a
inch Diameter
Point Prism

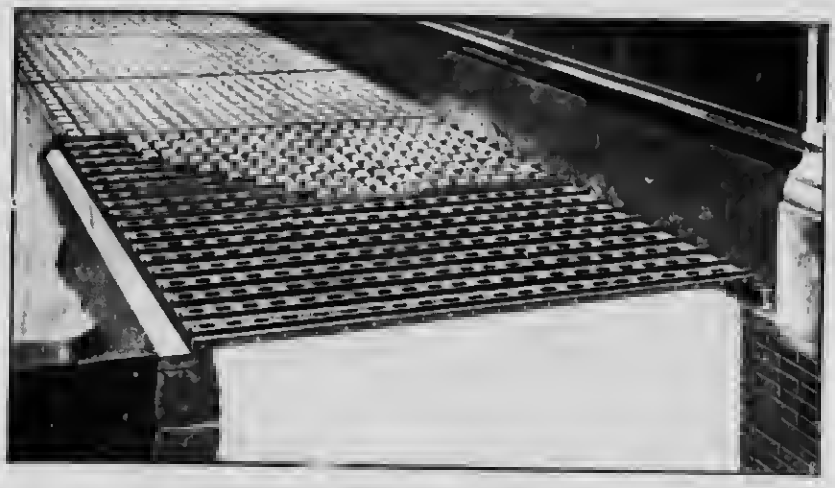
SIMPLEX REPLACEABLE SIDEWALK AND FLOOR LIGHTS.

A thoroughly practical construction, which is **guaranteed to be water-tight** and free from shaling of glass.

Simplex construction is doubly reinforced, and the steel used in it is entirely protected by the concrete, and is thus **immune from corrosion.**

The glass used in Simplex is covered with a patented mal ble coating, which takes care of any expansion of the steel or concrete, and absoh dy prevents shaling of the glass, which occurs in all other constructions, and wh h was impossible to overcome until Simplex was placed on the market.

This is the only sidewalk construction that does not require experts to set, the most important part of the work being done at our factory. When the pre formed slab is placed over the opening, the glass is set in place, and the balance of the cement put on by an ordinary cement mechanic.



SIMPLEX CONSTRUCTION—SHOWING METHOD AND SIMPLICITY OF INSTALLATION.

SIMPLEX SKYLIGHT SYSTEM.

Simplex system of skylights consists of a pre-formed factory-made slab of reinforced concrete, insuring the proper spacing and placing of reinforcement. Pre-formed slab is $1\frac{1}{4}$ in. in thickness, with heavy I-beam reinforcement one way and twisted steel rods in the other direction, which is sufficient in itself to carry heavy loads. The finished work, being $2\frac{1}{2}$ in. thick, is so constructed that the glass, which measures 6 in. x 6 in lits true and straight, making it impossible to set lenses out of perfect alignment.

SPECIFICATION.

Skylights, Sidewalk Lights, Floor Lights, shall be of double reinforced concrete construction, with factory-made pre-formed slabs, having heavy I-beam tension members one way, with transverse reinforcement of twisted steel rods, using No. Tamex quality annealed glass, with cushion of malleable coating. All work to be guaranteed against defective workmanship and material, maintained water-tight, and glass guaranteed against breakage from expansion or contraction for a period of two years.

NOTE.

We will be pleased to furnish, on application, full size detail drawing of the various construction which we manufacture. See also page 195.

THE TORONTO PLATE GLASS IMPORTING CO., LIMITED

DON ROADWAY,

TORONTO, ONTARIO

MADE IN CANADA BENT GLASS TORONTO PLATE GLASS IMPORTING CO. LIMITED

PRODUCTS. **GLASS BENDERS TO THE TRADE.**

BENT GLASS "MADE IN CANADA." We make a specialty of CONTINUOUS GLASS in shop fronts, of bent and flat plates. A CONTINUOUS SHOP FRONT, the length of a street, may be obtained by this method, thus presenting many architectural effects WITHOUT CORNER AND INTERSECTING BARS. The edges of bent and flat glass, being suitably ground and abutted together, are held by small buttons. A store front of any dimensions, of one half a circle or even more, on 2, 3 or 4 plates without bars can be readily made. A serpentine or any other circuitous line, with or without any intersecting flat plates, may be easily followed.

Suggestive diagrams and price lists sent on application.

PHOTO OF STORE FITTED WITH OUR CONTINUOUS METHOD. MUNRO & MEAD, ARCHITECTS.

SPECIAL. BENT 32-OZ. GLASS.—Our Bent 32-oz. best quality Sheet Glass in sash sizes, has an excellence almost equal to that of plate glass. It is bent true to curvature and free from waviness peculiar to the flat sheet glass. It is lighter than plate glass. This substance is useful where plate glass is too heavy.

NOTE. See next page for price list.

CONTINUED ON NEXT PAGE

TRADE PRICES OF BULGED PANES.

FOR CASEMENT, SASH, TRANSOMS AND INTERIOR WORK

Made of Good Quality 16 oz Glass	Price each (Glass only)
Panes not over 7 x 7	15 cents
" " 8 x 8	18 "
" " 9 x 9	22 "
" " 10 x 10	26 "
" " 11 x 11	31 "
" " 12 x 12	35 "

These panes are glazed in the ordinary way with good putty and not with stops. They make an exquisite window and give a very high class home decoration, not obtainable with ordinary glass.

Oblong panes at same prices as above at approximate areas.

SPECIAL TRADE PRICES OF GLASS BENDING

Ordinary straight lines bent to a circle or segment of a circle.

When bent to size	PLATE GLASS (3/16 thick) Girth or circumference of the glass	Price per Foot
Panes not exceeding 50 inches	50 inches	$0.25
" " 75 "	75 "	40
" " 100 "	100 "	60
" " 125 "	125 "	80
" " 150 "	150 "	100
" " 175 "	175 "	120
" " 200 "	200 "	140
" " 225 "	225 "	160
" " 250 "	250 "	180
" " 275 "	275 "	200
" " 300 "	300 "	220
" " 325 "	325 "	240
" " 350 "	350 "	260
" " 375 "	375 "	280
" " 400 "	400 "	300

When bent to size	SHEET GLASS Double thick, when bent not exceeding 1/4 circle in width of the glass	Price per Foot
Panes not exceeding 50 inches	50 inches	$0.25
" " 75 "	75 "	40
" " 100 "	100 "	60
" " 125 "	125 "	80
" " 150 "	150 "	100
" " 175 "	175 "	120
" " 200 "	200 "	140
" " 225 "	225 "	160
" " 250 "	250 "	180
" " 275 "	275 "	200
" " 300 "	300 "	220
" " 325 "	325 "	240
" " 350 "	350 "	260
" " 375 "	375 "	280
" " 400 "	400 "	300

Such Thick Glass, when not over 50 inches girth, 20¢ less.

Larger Plates Prices on application.

Panes one part flat and one part bent, the bent part to be not more than one-third of the width, and also circular panes exceeding 1/4 circle and not exceeding 1/2 circle 25% advance.

Panes two parts flat and one part bent, the bent part to be not more than one-third of the width 40% advance.

Prices for more difficult shapes on application.

32 oz. Sheet Glass 20% advance on double thick plate, Cathedral, Figured Rough Glasses and 1/4 Rolled Plate not over 50 inches long or wide 10% advance on above prices.

Rolled Plate and other Glasses in larger sizes than regular stock sizes, also Rolled Plate and other Glasses over 1/4-inch and not more than 1/2-inch thick, of any size bending, to be given to the glass, with a further discount of 25%.

Plate Glass and Sheet Glass when ground, chipped, embossed or matted, to be charged extra in addition to prices for extra risk in bending.

BENDING BEVELLED PLATE GLASS Glass already bevelled cannot be received for bending. Special prices for bevelling bent glass on application.

Boat Panes, Panes Conical, Winding, or those not having parallel sides or ends, are charged net list.

Minimum charge for bending any one order is 50c. for Sheet Glass, and $1.00 for Plate Glass and other glasses, glass included.

Panes less than 12 inches wide will be charged as 12 inches wide.

Panes in quantities of 10 or more, less than 12 inches long and wide special prices on application.

All bending is charged with fractional portions of inches as the next even inch.

Bending is not guaranteed exact, edges straight, flat parts flat or any two panes alike, owing to inequalities in expansion and contraction in moulds and glass, but our work will be found to be so exact as to avoid any reasonable complaint extra large plates, and those exceeding ordinary sweeps are liable to be mould marked.

Where glass is to be put in metal frames, we advise these to be sent to our works, or provision made for adjustment A charge is made for fitting in all cases when frames or sashes are sent to have bent glass fitted to same.

Glass supplied at current market prices.

DISCOUNTS OFF TRADE LISTS — Bulged panes from 10% to 20% according to the importance of the order.
Glass bending from net list single panes to 40% off for bending sheet glass.
And from 40% off for bending single plates to 50% off for bending quantities of plate glass.

Discount for bending will be 10% less in every instance when we do not supply the glass.

Above prices and conditions are only for glass and bending on the floor of our works. Packing charged at cost

THE LUXFER PRISM CO., LIMITED

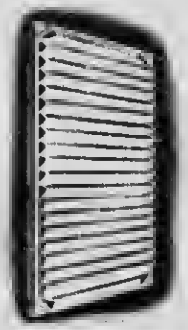
R. S. MODNEY,
1008 E. T. Bank Bldg., Montreal
Telephone, Main 4074
JOHN H. ALEXANDER
606 Builders' Exchange Bldg., Winnipeg

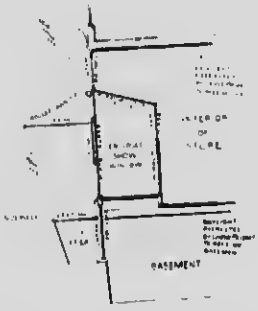
100 King Street West,
TORONTO, ONT.

E. G. CULLEN,
418 Pacific Bldg., Vancouver, B.C.
WALKER & BARNES, Limited,
Edmonton, Alta.

PRODUCTS. We are the sole manufacturers of the original LUXFER PRISMS for Window Transoms, Canopies, Skylights and Pavement Lights.

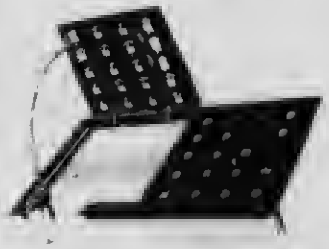
LUXFER PRISMS. Luxfer Prisms are the outcome of years of scientific study, and they are acknowledged to be the most popular refracting prism obtainable. The prism is four inches square, and these squares are assembled by our electro-glazing method in solid copper, producing a solid, air-tight or windproof panel.





SIDEWALK PRISMS. The Sidewalk Prisms, as illustrated, are installed in the Luxfer Interlocking, galvanized or black steel frames; no iron is exposed on the surface.

ESTIMATES. We shall be pleased to demonstrate the value of Luxfer Prisms at our showrooms, to anyone interested. The services of our trained lucical engineer is at all times at the disposal of architects and intending purchasers, or of anyone desiring information or suggestions as to the means of obtaining the best possible lighting results. We are prepared to submit estimates for the complete installation of Luxfer Screens and Pavement Lights.



CATALOGUES. We shall be pleased to furnish fuller illustrated literature upon application.

HOIDGE MARBLE CO., LIMITED

34 PRICE STREET, TORONTO, ONT.

PRODUCTS. Manufactnrers of and Contractors for all kinds of MARBLE WORK.

MARBLE. We import annually large quantities of Foreign Marbles, and are in a position to obtain the finest selections of blocks of both Foreign and Domestic Marbles.

We personally inspect all our Marble in the block before purchasing, thus obtaining the desired results in matching both colours and veining.

STAIRCASE ENTRANCE TO ROYAL BANK OF CANADA, TORONTO

REFERENCES. Some of the contracts we have executed are

Dominion Bank, Hamilton.
Royal Bank of Canada, Toronto.
Traders Bank, Toronto.
Bank of Nova Scotia, Toronto.
Bank of Nova Scotia, Kingston, Jamaica.
Bank of Montreal, Yonge and Queen, Toronto.
Standard Bank, King and Jordan, Toronto.
Canada Life Assurance Building, Vancouver.
Parliament Buildings, Toronto.
Electric Development Co's Offices, Niagara Falls.
Custom House, Toronto.
Standard Bank, Chatham, Brantford and Belleville.
Landed Banking and Loan, Hamilton.
Court House, Vancouver.
School of Household Science, Toronto.
Toronto General Trust, Head Office, Toronto.
Dominion Bank, Victoria, B.C.
Dominion Bank, Vancouver, B.C.

Carrere & Hastings and Eustace G. Bird, Assoc. Architects
Carrere & Hastings and Eustace G. Bird, Assoc. Architects
Carrere & Hastings and F. S. Baker, Assoc. Architects
Darling & Pearson, Architects
Darling & Pearson, Architects
Darling & Pearson, Architects
Darling & Pearson, Architects
Darling & Pearson, Architects
E. J. Lennox, Architect
E. J. Lennox, Architect.
Curry, Sproatt & Rolph, Architects
Power & Son, Kingston, Architects
Chas. Mills, Hamilton, Architect
F. W. Rattenbury, Victoria, Architect
G. M. Miller & Co., Architects
G. M. Miller & Co., Architects
Carrere & Hastings and Eustace G. Bird, Assoc. Architects
Carrere & Hastings and Eustace G. Bird, Assoc. Architects

ONTARIO MARBLE QUARRIES, LIMITED

34 Price Street, Toronto, Ont.

Quarries: Bancroft, Hastings County, Ont.

BUSINESS. Producers of DOMESTIC MARBLE.

We own and operate the largest Marble Quarries in the Dominion, situated on the Central Ontario Railway, near Bancroft, Ont.

CAPACITY. We have a total acreage of 1,500 acres, with marble deposits throughout the whole vast areas.

Have every modern facility for turning out Marble in any size required, with railway facilities both East and West.

BANKING ROOM, STANDARD BANK, TORONTO
Darling & Pearson, Architects

The marble columns, counters, dado, etc., represented above, are all products of our quarries.

MARBLE INTERIORS. Previous to 1913 we were working two quarries, producing eight varieties of marble adaptable for almost any colour treatment

VEINED WHITE In 1913 we have opened up and developed a white marble quarry, with all the characteristics of English Veined Italian, with the exception of a slightly warmer colour in the ground. This is remarkably sound, and we can produce practically any size required

EXTERIOR MARBLES We have also for exterior purposes a White Marble with a touch of Cream throughout giving the required warmth and tone so much desired. This can be produced in any size blocks that may be desired

DELIVERY We are prepared to ship either in the block, of which we have on hand at all times a large quantity, or we will saw same to size or ship in the slab requirements for exterior building work. Interior, decorative, monolith columns, electrical or similar classes of work.

Samples and prices on application.

Address all communications to the Head Office, Ontario Marble Quarries, Limited, 34 Price Street, Toronto.

THE SMITH MARBLE AND CONSTRUCTION CO., LIMITED

IMPORTERS, MANUFACTURERS, CONTRACTORS.

GENERAL OFFICE AND WORKS: 145 VAN HORNE AVENUE, MONTREAL, QUE.

PRODUCTS. We are importers (direct from Europe and United States) of MARBLES, and are Manufacturers of these and CANADIAN MARBLES of various kinds now being extensively used in the construction of important buildings. We carry a large and varied stock of Marble and Tiles. With our thoroughly equipped plant and facilities, we can assure the highest grade of workmanship and prompt deliveries.

CONTRACTORS. We are also Contractors for all kinds of Interior Marble, Tile and Slate Work, such as Marble Carving, Marble Walls, Floors, Treads, Electric Switchboards, Plumbers' Marble, Slate Blackboards, Floor and Wall Tile, Terrazzo, Mosaic and Ceramic Floors.

We finish and deliver goods, also erect and complete work in any part of Canada.

The above cut represents Hauteville Marble Staircase leading from Lounge to Hall Ross & Chalreau Laurier, Ottawa. Executed by us for Messrs. Tiffany Studios of New York. Ross & McFarlane, Architects

BUILDINGS ON HAND OR COMPLETED. We give below some representative buildings recently completed or now in hand as examples of our work:

We invite correspondence with Architects and General Contractors.

BUILDING.	CITY.	
Bank of Montreal	St. John's, Nfld	Peden & McLaren
Post Office	Halifax, N.S.	David Ewart, Dominion Arch't
Power Building	Montreal, Que.	Kenneth G. Reid
McDonald College	St. Anne, Que.	Hutchison, Wood & Miller
Lake of Woods Building	Montreal, Que.	Ross & McFarlane.
Bank of Montreal	Montreal, Que. (Peel St.)	Ed. & W. S. Maxwell
Bank of Toronto	Montreal, Que. (Guy St.)	Ed. & W. S. Maxwell
Royal Bank	Winnipeg, Man.	Carrere & Hastings and E. J. Bird
Victoria Memorial Museum Building	Ottawa, Ont.	David Ewart, Dominion Arch't
Place Viger Extension	Montreal	W. S. Painter
Chateau Laurier	Ottawa	Ross & McFarlane.
Great West Life (In course)	Winnipeg, Man.	John M. Archison
McGill Building	Montreal	R. E. Bostrom, Architect
Read Building	Montreal	Ross & McFarlane, Architects

MISSISQUOI MARBLES, LIMITED

PHILIPSBURG, QUE.

BRANCH OFFICES.

MONTREAL, TORONTO, ST. JOHN, N.B., WINNIPEG, VANCOUVER, NEW YORK CITY.

PRODUCTS. We supply QUARRY BLOCKS, DIMENSION MARBLE, DADOS, FULL-SIZED SLABS, TREADS AND PLATFORMS, TILES AND FLOOR BORDERS all CANADIAN PRODUCTS. We also contract for the erection of INTERIOR MARBLE.

DESCRIPTION. Missisquoi Marble has many advantages, being very closely grained and taking an excellent finish. Porous marbles soon fade, stain and lose their polish and beauty. Missisquoi Marble is not only beautiful in appearance, but will outlast all ordinary marbles. For exterior work its fine grain and firm body defies the ravages of time, while for interior work they keep its polish which preserves it from stains. The various shades of Missisquoi Marbles lend themselves harmoniously to almost any colour scheme.

QUARRY. Our Quarries are the largest in Canada, the deposit being several miles in length and of unknown depth, although it has been tested to over 500 feet. The marble is stratified, and we produce from it nine distinct varieties: Light Grey, Dark Grey, Dark Grey with White Mottle, our famous "Rex," "Regina," "Emeraldo," and the strikingly beautiful "Sea Green," "Vert Gris," and "Vert Rose."

CAPACITY. We have always on hand a large supply of quarry blocks of our several varieties of marble. The quarries have been thoroughly developed, and, with nine Channelling Machines and miscellaneous equipment, we are producing 4,000 cubic feet weekly, or 40,000 square feet of full sized slabs. Our Mills and Shops are equipped with eighteen gangs of Saws, Travelling Cranes, Hoists, Carborundum Machines, Lathes, Planers, Rubbing-beds, Pneumatic Tools, Gritting and Polishing Machines, and various smaller machinery to facilitate operations.

MARBLE INTERIORS. Marble interiors have become general for buildings throughout Canada, although the material, until very recently, had to be imported at considerable cost on account of freight and duty. Now that Missisquoi Marble is available in large quantities and in several varieties, it is used generally in the Dominion for the better class of interior decorative work. "Missisquoi" will be found in nearly all the Government Parliament Buildings, Banks, Hotels and Office Buildings. Canadian and American experts have pronounced Missisquoi to be fully equal in quality and appearance to the world's best products.

MARBLE TREADS AND FLOORS. We have a variety of Marble which is most suitable for Floors, Treads and Risers for Stairs. It is closely grained and hard, and will resist wear better than most marbles, while its non absorbing qualities make it desirable for this class of work.

CRUSHED MARBLE FOR TERRAZZO. We produce a crushed marble for use in making Terrazzo Flooring, and can supply four different sizes and various colourings. The effect of these different sizes and colours in the finished floors is most pleasing and artistic.

LIME. Our Lime Plant is operated in connection with the Quarry, where all our waste marble is utilized. The Kilns have a capacity of ninety tons per week, and with the increasing demand additional capacity will be erected.

SHIPPING FACILITIES. The Philipsburg Railway, owned and operated by the Missisquoi Company, affords the best of shipping accommodations, as it connects directly with the Canadian Pacific, Central Vermont, and Grand Trunk Systems.

CONTINUED ON NEXT PAGE

VARIETIES OF MISSISQUOI MARBLE.

"VERT GRIS." "Vert Gris," as its name implies, is a mottled effect of green and grey.

The markings are more delicate than in other varieties, but variegated with small deep grey spots.

"DARK GREY." Dark Grey Marble is produced from the same strata as "Vert Gris," but the green has almost disappeared, leaving, however, a faint greenish tinge, which adds much to its appearance.

We recommend this for interior decorative purposes and also mausoleums, as it stands the weather well.

ROYAL BANK, TORONTO, ONT.

ILLUSTRATION. One of the finest pieces of interior marble work to be found in the country is in the Royal Bank at Toronto. This was one of the first contracts that the Company secured, and had much to do with the large volume of orders which have since been received, and the Company's general commercial success.

"REX." This is a beautiful, light coloured marble. The background is a pinkish cream colour, with long green markings.

It can be produced in almost any length. This feature, combined with the "long green markings," makes "Rex" particularly adapted for column work.

It is also especially suitable for panelling, and gives an elongated effect to the work.

CONTINUED ON NEXT PAGE

VARIETIES OF MISSISQUOI MARBLE.

"SEA GREEN." This marble has a light background, with dark green markings. It is not so susceptible to a high polish as some of our other varieties, but is extensively used for base and cap mouldings on account of the attractive contrast, especially when used with light panelling.

"VERT ROSE." The background of this marble is a mottled green and grey, beautifully marked with pink to white, producing an artistic and pleasing effect.

We recommend "Vert Rose" for the *highest* class of interior marble decoration. It is especially attractive in pilaster work. There is no marble produced that has the same variety of colours. It is considered very unique.

Hudson County Court House, Jersey City

ILLUSTRATION. The above cut represents the interior of the Hudson County Court House at Jersey City, which shows how Missisquoi Marble lends itself to interior decoration.

"EMERALDO." This marble has a white background, with dark green markings, giving a mottled effect. The background is a very light grey, but the dark markings make it appear white. It is very closely grained, takes a high polish, and is very suitable for interior decorative work because of its uniform colour.

"REGINA." This marble is light grey (in places almost white), veined with light green, shading to still lighter green with yellowish tinge.

It can be produced in slabs 14 ft. x 7 ft., the limit of our saws, but in columns to almost any size. It has a very beautiful appearance when used in columns, a fair sample of which may be seen in the Royal Bank, Toronto, size 21 ft. 6 in. x 18 in.

CONTINUED ON NEXT PAGE

TESTS.

Tests of four samples of Missisquoi Grey Marble, made by Professor MacKay, Director of the Department of Civil Engineering and Applied Mechanics, McGill University, Montreal, on July 13, 1909, shows the following:

COMPRESSION TEST.

First Sample, Maximum Load	.....	21,380 lbs. per sq. inch.
Second Sample, Maximum Load	.....	21,280 lbs. per sq. inch.
Third Sample, Maximum Load	.....	21,760 lbs. per sq. inch.
Fourth Sample, Maximum Load	.....	22,900 lbs. per sq. inch.

NOTE.—"It is to be noted that the compressive strength is exceptionally high and compares favourably with the best grades of granite."

ABSORPTION TEST.

Two rough broken samples, after being thoroughly dried, were immersed in water for 48 hours, with the following results.

	WEIGHTS BEFORE IMMERSION	AFTER	GAIN.	PER CENT.
Sample 1	1.3770 lbs.	1.3780 lbs.	.0010	0.072
Sample 2.	1.9540 lbs.	1.9555 lbs.	.0015	0.076

Specific Gravity, 2.71.
Weight per cubic foot, 169.5 lbs.

NOTE.- "The percentage of moisture absorbed is thus remarkably low, which indicates, in my opinion, a stone which should have exceptionally good weathering qualities."

From the above it will clearly be seen how well suited Missisquoi Marble is, both for exterior and interior construction.

REFERENCES.

Our material may be seen, amongst other places, in the following buildings:

Transportation Building, Montreal
St. Regis Hotel, Montreal
Lyman Building, Montreal
Canadian Bank of Commerce, Montreal
Canadian Express Building, Montreal
Montreal Post Office, Montreal
Emmanuel Church, Montreal
Molson's Bank, Ontario and La Salle Ave., Montreal
Place Viger Station, Montreal
Windsor Station Extension, Montreal
Windsor Hotel Extension, Montreal
Wilder Building, Montreal
Y.M.C.A., Drummond Street, Montreal
Y.M.C.A., North End, Montreal
Y.M.C.A., West End, Montreal
McGill Building, Montreal
Chateau Laurier, Ottawa
Union Station, Ottawa
Y.M.C.A., Ottawa
Rosenthal Building, Ottawa
City Hall, Ottawa
Victoria Museum, Ottawa
Bank of B.N.A., St. John, N.B.
Royal Bank, Toronto
Birkbeck Building, Toronto
Mossop's Hotel, Toronto
Parliament Buildings, Toronto
Heintzman Building, Toronto
Central Building, Toronto
Confederation Life Building, Toronto
Ryrie's Store, Toronto
Dental College, Toronto
Imperial Life Building, Toronto
Mason & Risch Building, Toronto
Merger Building, Quebec
Laval University, Quebec
Caisse D'Economie, Quebec
Custom House, Quebec
Imperial Bank Building, Hamilton
Fort Garry Station, Winnipeg
Bank of Nova Scotia, Winnipeg
Northern Crown Bank, Winnipeg
Law Courts Building, Winnipeg
Fort Garry Hotel, Winnipeg
Lindsay Building, Winnipeg
Bank of Ottawa, Vancouver
Metropolitan Building, Vancouver
Canada Life Building, Vancouver
Hook Sing Tong Building, Victoria
King George Hotel, Brandon
Brandon Asylum, Brandon
Parliament Buildings, Edmonton
National Trust Building, Edmonton

GILLIS & GEOGHEGAN

MANUFACTURERS OF

G. & G. TELESCOPIC HOIST,

TELEPHONE SPRING 0140. 549 WEST BROADWAY, NEW YORK, N.Y.

W. T. Grose, 905 Electric Railway Chambers, Winnipeg—Agent for Manitoba, Saskatchewan and Alberta
Wm. N. O'Neil Co., Ltd., 548-550 Seymour Street, Vancouver, B.C.—Agents for British Columbia
G. & S. H. Thompson & Co., Ltd., Montreal—Agents for Quebec
Black Building Supply Co., Mail Building, Toronto—Agents for Ontario

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PRODUCTS AND SERVICE

We manufacture the G. & G. TELESCOPIC HOIST (Patented).
The G. & G. TELESCOPIC OVERHEAD CRANE HOIST.
The G. & G. TELESCOPIC HOIST with ELECTRIC MOTOR.
The G. & G. TELESCOPIC OVERHEAD CRANE HOIST with ELECTRIC MOTOR.
We install the apparatus complete in New York, N.Y.

DESCRIPTION

G. & G. Telescopic Hoist is a simple, safe and substantial means for hoisting and lowering between cellar and sidewalk, ash cans, kegs, barrels, ice, etc. Fig. 1 shows Hoist as it is when not in use—a *part shows above sidewalk*. To put apparatus in position for hoisting (Fig. 2), the operator draws the telescoping handle as far as it will go. A safety ratchet device is provided with both telescoping handle and hoisting handle. For lowering, a powerful all steel brake attachment is provided.

ADVANTAGES

Hoist raises the load at speed of thirty feet per minute.
The opening in sidewalk need be little larger than necessary to permit passage of can.
Cable drum is grooved, gears are machine cut throughout. Hoist is very easy to erect.
We furnish all necessary clamps and bolts, and blue-print showing erection in detail.
Hoisting handle can be moved in a forward direction only, when load is being raised.
When brake is used to lower load, *the hoisting handle does not revolve*.
The position of operator, standing at sidewalk when Hoist is in use, protects the public against danger of falling into shaft, and protects operator against danger of heavy load falling on him.

CAPACITY

The maximum working capacity is 500 pounds.

Fig. 1—G. & G. Telescopic Hoist as it is when not in use. Compact, easy to erect, and takes up no room.

Fig. 2—G. & G. Telescopic Hoist in Operation. Hoisting Handle revolves. Can is deposited on sidewalk without lifting.

CONTINUED ON NEXT PAGE

G. & G. TELESCOPIC OVERHEAD CRANE HOIST.

Illustration (Fig. 3) shows the G. & G. Telescopic Overhead Crane Hoist (Patented). This Hoist is so arranged that the operator, standing at grade level, may raise ash-can from cellar to position six or eight feet above grade, and empty can directly into cart, without rehandling at grade level. This Hoist has the telescopic feature, so that *no part shows above pavement when not in use*. It is also constructed so as to retain the features of strength, safety, durability, ease and rapidity in operation, and economy of space occupied, the same as our ordinary sidewalk level hoist.

CAPACITY

Raises load at speed of thirty feet per minute. Maximum working capacity, 400 pounds. The can shown in Fig. 3 weighs 200 pounds, when full of ashes.

On request, we construct Hoist with adjustable guy rods, running from top of Hoist to building walls. When Hoist is so arranged, its maximum working capacity is 500 pounds.

G. & G. TELESCOPIC HOIST WITH ELECTRIC MOTOR

Illustration (Fig. 4) shows the G. & G. Telescopic Hoist with Electric Motor (Patented), for hoisting or lowering ash-cans between cellar and sidewalk. *No part shows above sidewalk when not in use.* Maximum working capacity, 500 pounds. Raises load at speed of sixty feet a minute.

Prices and specifications furnished on request.

We also manufacture the G. & G. Telescopic Overhead Crane Hoist with Electric Motor for raising ash cans from cellar and emptying directly into ash cart without re-handling at grade level. No part shows above pavement when not in use.

Fig. 3. G. & G. Telescopic Overhead Crane Hoist in Elevation. Hoisting Head revolves on ball bearing to swing [illegible] over water.

Fig. 4. G. & G. Telescopic Hoist, with Electric Motor. Raises load at speed of sixty feet per minute.

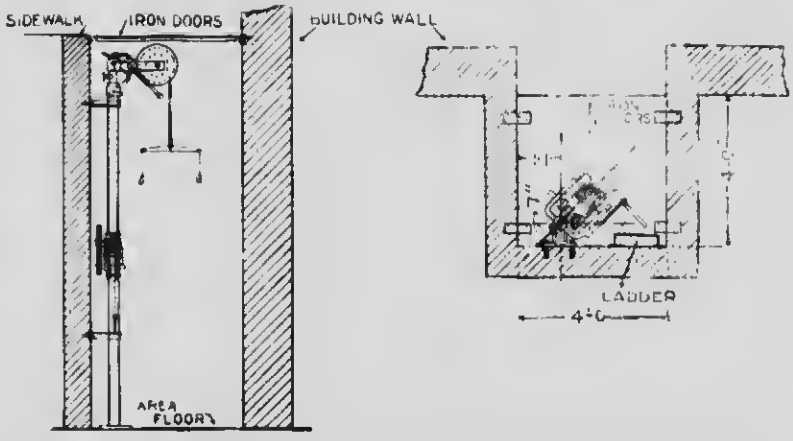

Fig. 5. Plan and Elevation showing Area required for G. & G. Telescopic Hoist or Hoist with Electric Motor. Note: Area shown above is for can 4 feet high; for overhead Crane Hoist or Hoist with Electric Motor.

THE TURNBULL ELEVATOR MANUFACTURING CO.

126-132 JOHN STREET,
TORONTO, ONT.

TYPES OF TURNBULL ELEVATORS.

HIGH-SPEED TRACTION PASSENGER.

STANDARD DRUM PASSENGER D.C. AND A.C.

AUTOMATIC PUSH BUTTON CONTROL.

ELECTRIC FREIGHT DIRECT-CONNECTED OR SINGLE BELT.

DOUBLE BELT FREIGHT HAND-POWER—DUMB WAITERS.

HYDRAULIC PASSENGER AND FREIGHT

ENCLOSURES AND CAB GRILLES, SAFETY GATES, Etc

SOME INSTALLATIONS.

Toronto General Hospital.
Ryrie Office Building, Toronto.
Confederation Life Building, Toronto.
Mason & Risch, Building, Toronto.
Massey-Harris Company, Toronto.
Canadian Niagara Power Co., Niagara Falls.
Grain Exchange Bldg., Fort William.
Ogilvie Building, Toronto.
Flett, Lowndes Building, Toronto.

CORRESPONDENCE, Etc. Correspondence invited—let us submit estimate.

OTIS-FENSOM ELEVATOR COMPANY, LIMITED

MANUFACTURERS OF

PASSENGER AND FREIGHT ELEVATORS,

DUMB WAITERS, ESCALATORS, INCLINED FREIGHT ELEVATORS, AND PATENTED GRAVITY PACKAGE CONVEYORS.

HEAD OFFICES: OTIS-FENSOM BUILDING, 50 BAY STREET, TORONTO, ONT.

OFFICES IN ALL PRINCIPAL CITIES OF CANADA. WORKS: HAMILTON, ONT

GENERAL. In presenting the accompanying layouts of elevators, our object is to place in the hands of architects and engineers who have the preparing of plans for buildings exact and reliable data which will enable them to make proper provision for the reception of the elevator equipment, thus insuring from the start a proper installation without having to make expensive alterations when the building is about completed in order to obtain same.

ADDITIONAL LAYOUTS. Owing to space limitations, we are only able to give a few carefully selected standard layouts of Belt-Driven, Direct-Connected Freight Elevators and of Drum Type Passenger Elevators, but we are prepared to furnish any architect with a complete set, comprising all our standard elevator layouts, for his office reference files on request.

The drawings submitted are carefully prepared along the lines of established standard practice, and it is only necessary, therefore, to select the type of elevator required, and provide in the plans the required clearances at top and bottom, in the hatch and the space required for the machinery.

STANDARDIZING ELEVATOR CONSTRUCTION. We have taken considerable pains to standardize elevator construction, as from our past experience we have repeatedly felt this would be of great benefit to the architect, in that the cost of installation could be materially reduced and deliveries facilitated if standard sizes were adopted at the outset it would enable the architect, in preparing his plans, to provide the necessary accommodation, instead of the troublesome necessity of altering plans later on. We, as the manufacturers, could then make the parts in large quantities, instead of a few at a time, as is now rendered necessary owing to the innumerable varying conditions. This would enable us to ship promptly from stock when required.

We are convinced that those interested will see the great advantage to all concerned by the use of standard layouts and standard sizes. We, therefore, suggest to those who have the preparing of plans for buildings in which elevators are required, that they do their part to co-operate with us in attaining this very desirable end.

ILLUSTRATION. The Elevator Equipment illustrated on this page is the Otis 1:1 Gearless Traction Elevator, similar to the equipment in the Singer Building, Woodworth Building, Bankers Trust, and other large New York sky-scrapers, and the following Canadian Buildings are equipped with this type of elevator:—Eastern Townships Bank, Montreal; Transportation Building, Montreal; Customs House, Montreal; Bank of Toronto, Toronto; Bank of Ottawa, Ottawa; Grain Exchange, Winnipeg; Calgary Herald Building, Calgary; McLeod Building, Edmonton; Dominion Burns Building, Vancouver.

CONTINUED ON NEXT PAGE

OTIS-FENSOM ELEVATOR COMPANY, LIMITED

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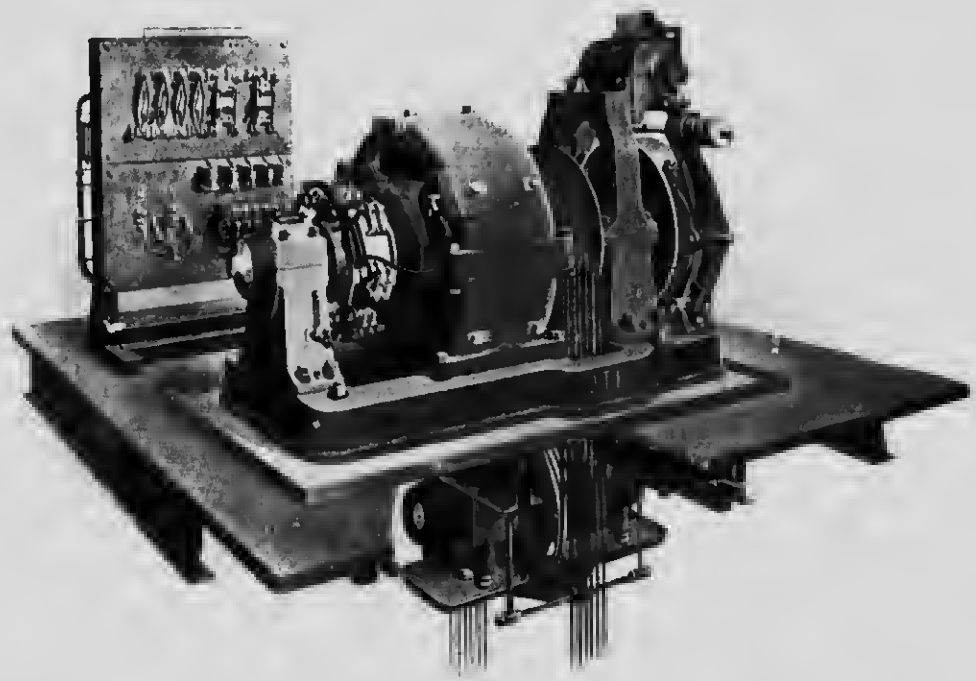
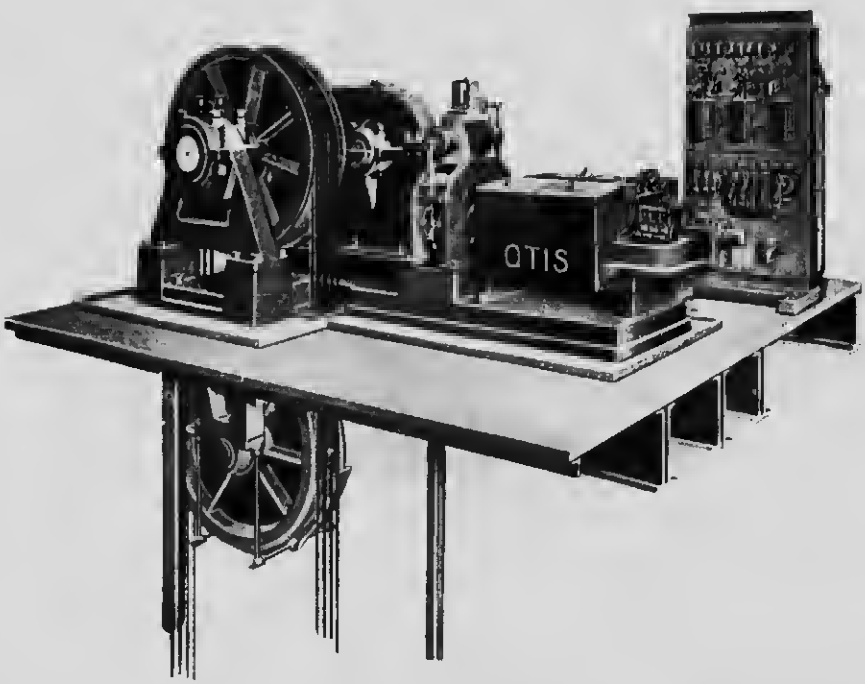
OTIS-FENSOM BUILDING, 50 BAY STREET,
TORONTO, ONT.

OFFICES IN ALL PRINCIPAL CITIES OF CANADA



OTIS U-1 TRACTION ELEVATOR, OVERHEAD TYPE, DIRECT CURRENT, SWITCH CONTROL.



OTIS DUPLEX GEARED TRACTION ELEVATOR, OVERHEAD TYPE, DIRECT CURRENT, SWITCH CONTROL

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OTIS-FENSOM ELEVATOR COMPANY, LIMITED

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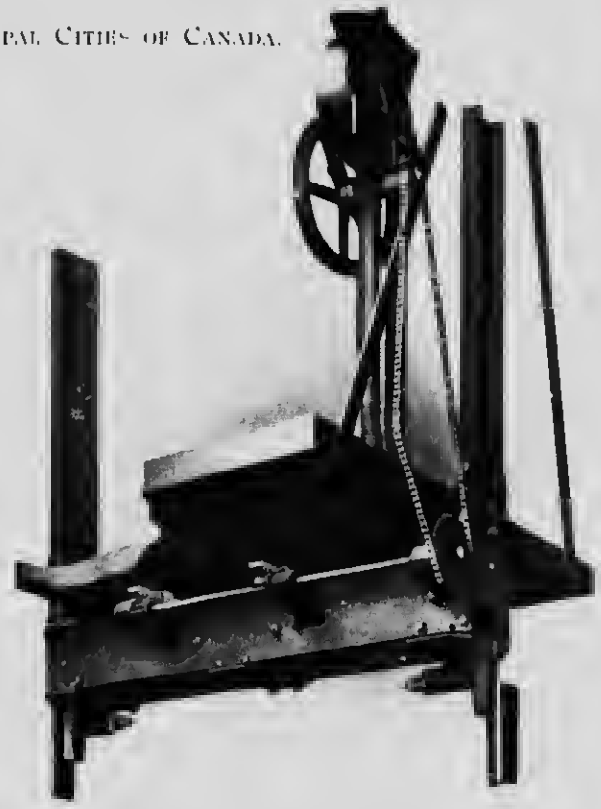
OTIS-FENSOM BUILDING, 50 BAY STREET,

TORONTO, ONT.

OFFICES IN ALL PRINCIPAL CITIES OF CANADA.

OTIS PASSENGER PLATFORM, WITH RELEASING CARRIER AND WEDGE CLAMP SAFETY, THE LATTER MOUNTED UNDERNEATH THE CAR, WITH ITS CHANNEL IRON FRAME REMOVED TO SHOW CONSTRUCTION DETAILS



OTIS PASSENGER PLATFORM WITH EMERGENCY DEVICE. THIS SAFETY IS OPERATED ORDINARILY BY A SPEED GOVERNOR, BUT AN EMERGENCY CONNECTION, USED ON A TRACTION ELEVATOR, CAN BE OPERATED BY THE ATTENDANT, SHOULD OCCASION ARISE, BY MEANS OF A WHEEL LOCATED NEAR CAR SWITCH

PLAN VIEW OF WEDGE CLAMP SAFETY DEVICE, WITH PARTS REMOVED TO SHOW CONSTRUCTION.

CONTINUED ON NEXT PAGE

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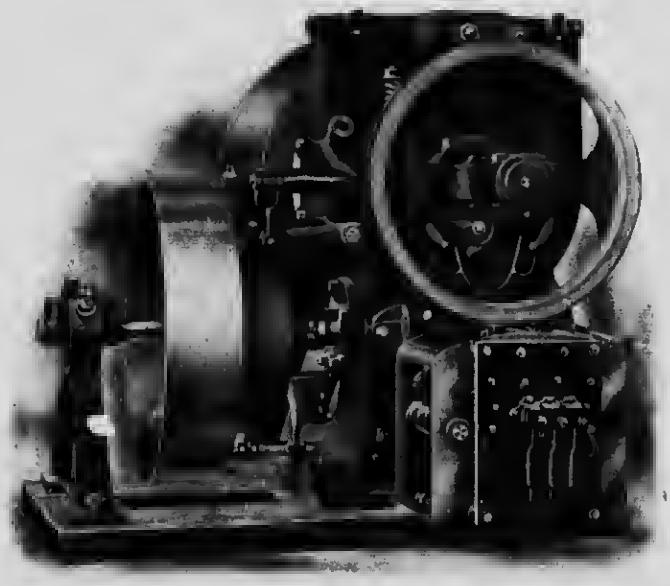
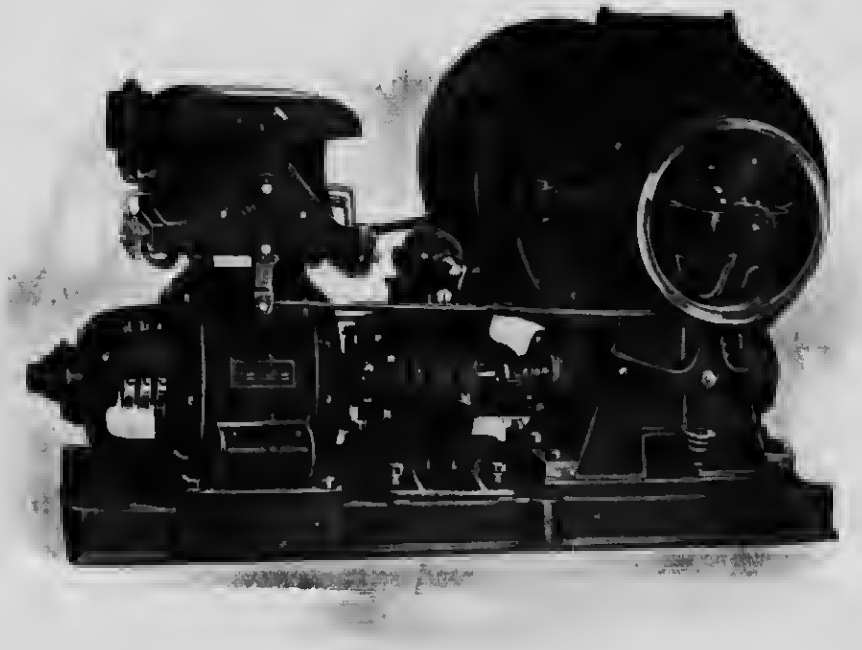
OFFICES IN ALL PRINCIPAL CITIES OF CANADA.



OTIS WORM GEARED, FLOOR TYPE, SINGLE BELTED, ELECTRIC FREIGHT ELEVATOR MACHINE. DIRECT CURRENT CONTROLLER IS SHOWN, BUT WILL BE SUBSTITUTED BY ALTERNATING WHERE REQUIRED.



OTIS WORM GEARED, DIRECT CONNECTED, ELECTRIC FREIGHT ELEVATOR MACHINE, ALTERNATING CURRENT TYPE, EQUIPPED WITH MAGNET BRAKE. DIRECT CURRENT MOTOR, CONTROLLER AND BRAKE SUBSTITUTED WHERE REQUIRED.

CONTINUED ON NEXT PAGE

TYPE "A3" H.T. A.C. CURRENT DIRECT CONNECTED PASSENGER

MACHINE CAPACITY 1800 LBS. AT 200 FT. PER MIN.

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"
5'-0" x 5'-0"	5'-0"	6'-6"	8'-6"	5'-0"	5'-6"	6'-6"

MACHINE CAPACITY 2000 LBS. AT 250 FT. PER MIN.

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"
5'-0" x 5'-0"	5'-0"	6'-6"	8'-6"	5'-0"	5'-6"	6'-6"
6'-0" x 6'-0"	6'-0"	7'-6"	9'-6"	5'-0"	5'-6"	6'-6"
6'-8" x 6'-0"	6'-0"	7'-6"	9'-6"	5'-6"	6'-6"	7'-6"

SIZE OF DRUM	MAXIMUM CAR TRAVEL
38"	80 FT.
25"	130 FT.

NOTE — WHEN FIGURING FOR SUPPORTS USE 8000 LBS. FIBRE STRESS FOR STEEL

SUPPORTS MARKED AA-BB BY OWNER

LAYOUT NO. HTB 200

STANDARD DRUM TYPE PASSENGER ELEVATOR

OTIS-FENSOM ELEVATOR COMPANY LIMITED.

TORONTO — CANADA

No. HTB 200

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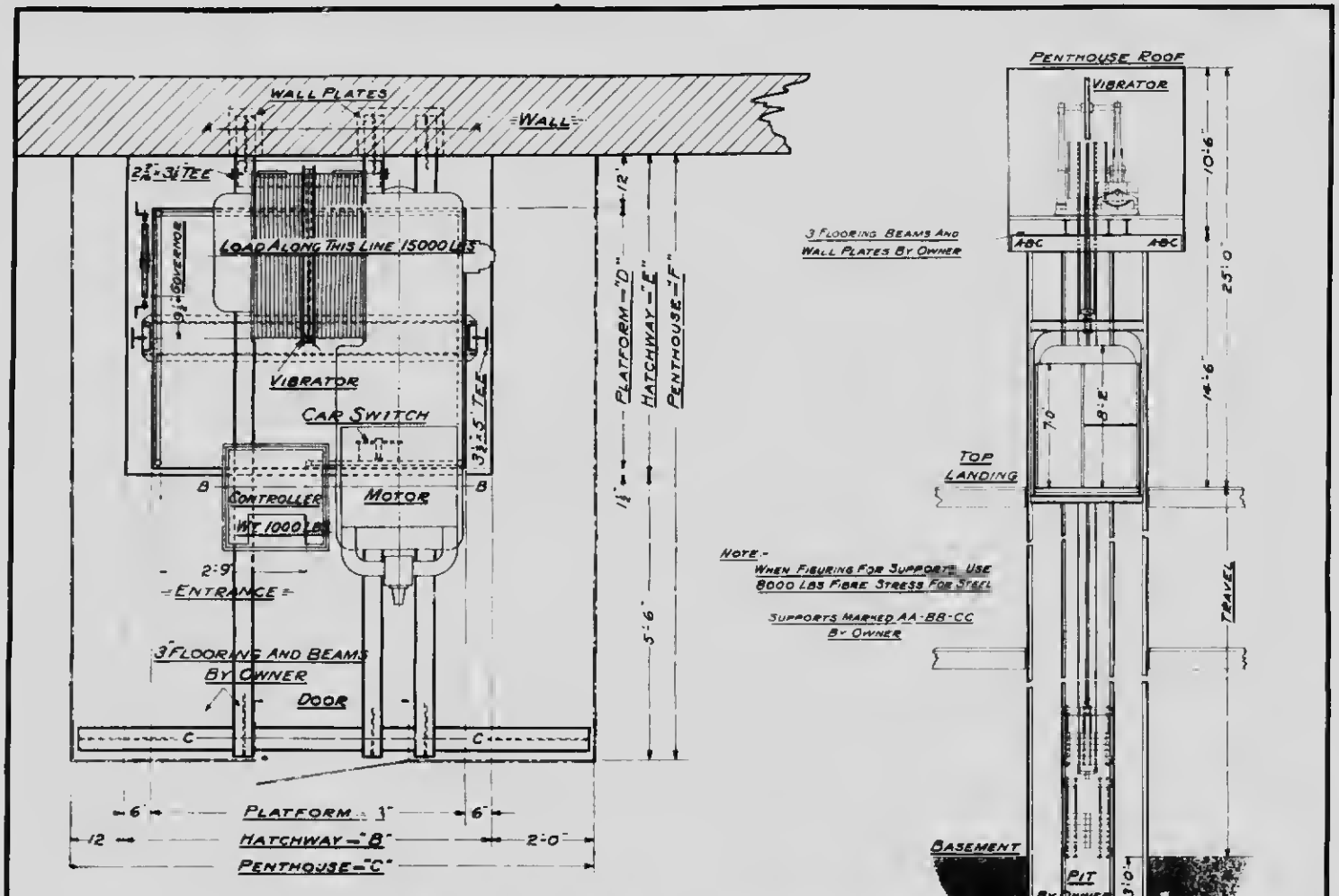

NOTE -
WHEN FIGURING FOR SUPPORTS USE 8000 LBS FIBRE STRESS FOR STEEL

SUPPORTS MARKED AA-BB-CC BY OWNER

No. HTB 210

TYPE "A 31 H" DIR. CURRENT DIRECT CONNECTED PASSENGER

MACHINE CAPACITY 1300 LBS. AT 200 FT. PER MIN.							MACHINE CAPACITY 2000 LBS. AT 250 FT. PER MIN.						
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"
5'-0" × 5'-0"	5'-0"	6'-0"	9'-0"	5'-0"	6'-1½"	11'-7½"	5'-0" × 5'-0"	5'-0"	6'-0"	9'-0"	5'-0"	6'-1½"	11'-7½"
							6'-0" × 5'-0"	6'-0"	7'-0"	10'-0"	5'-0"	6'-1½"	11'-7½"
							6'-0" × 6'-0"	6'-0"	7'-0"	10'-0"	6'-0"	7'-1½"	12'-7½"

DIAM. OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL
38"	19	50 Ft.
38"	25	90 Ft.

LAYOUT No HTB 210

STANDARD DRUM TYPE PASSENGER ELEVATOR

OTIS-FENSOM ELEVATOR COMPANY LIMITED

TORONTO - - - CANADA

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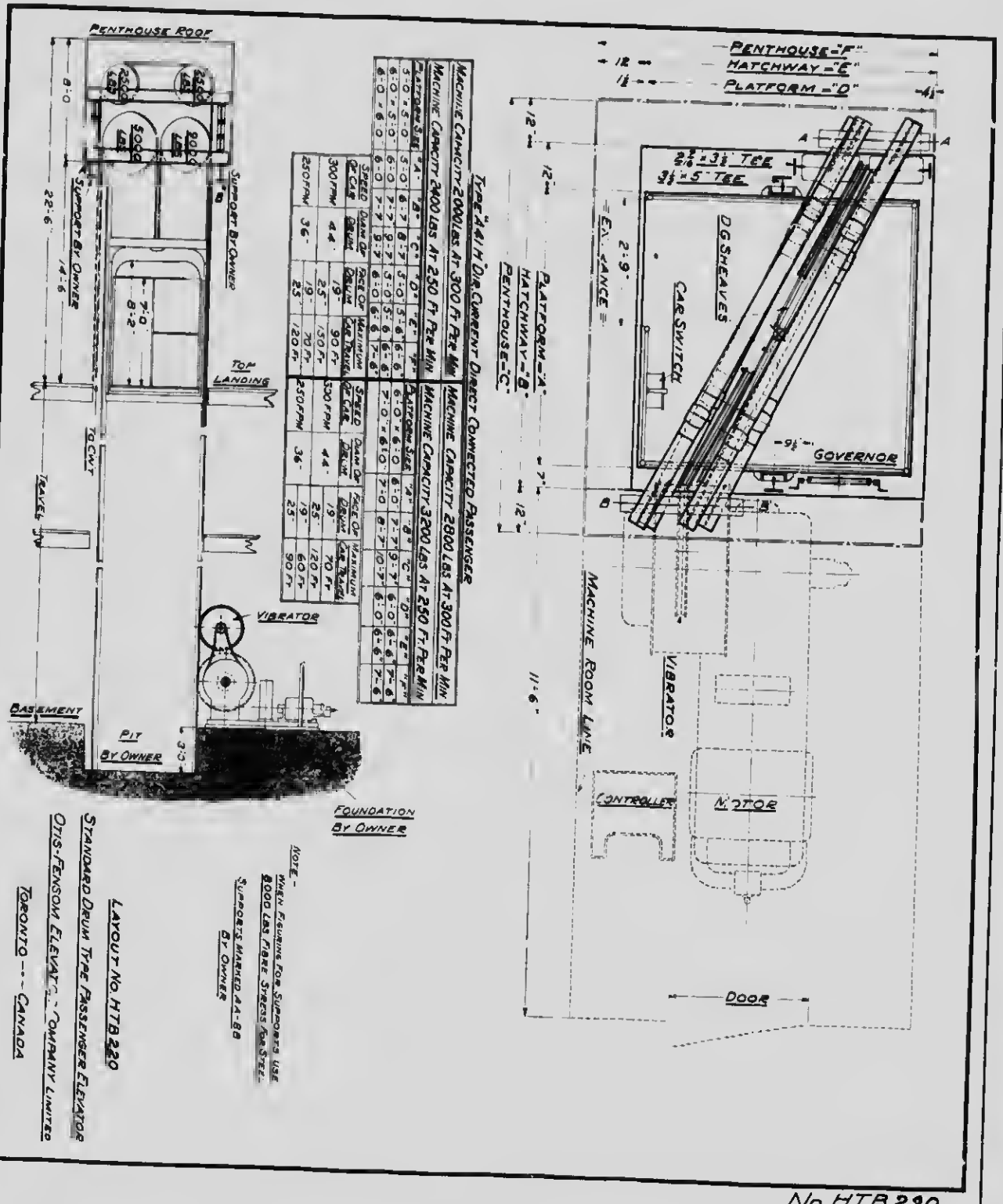

TYPE "A" 4 H.P. D.C. CURRENT DIRECT CONNECTED PASSENGER

MACHINE CAPACITY 2000 LBS. AT 300 FT. PER MIN.									MACHINE CAPACITY 2800 LBS. AT 300 FT. PER MIN.								
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	SPEED OF CAR	DIAM. OF DRUM	PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	SPEED OF CAR	DIAM. OF DRUM
5'-0" x 5'-0"	5'-0"	6'-7"	8'-7"	5'-0"	5'-6"	6'-6"	300 FPM	44"	6'-0" x 6'-0"	6'-0"	7'-0"	9'-7"	6'-0"	6'-6"	7'-6"	300 FPM	44"
6'-0" x 5'-0"	6'-0"	7'-7"	9'-7"	5'-0"	5'-6"	6'-6"	250 FPM	36"	7'-0" x 6'-0"	7'-0"	8'-7"	10'-7"	6'-0"	6'-6"	7'-6"	250 FPM	36"
6'-0" x 6'-0"	6'-0"	7'-7"	9'-7"	6'-0"	6'-6"	7'-6"											

	FACE OF DRUM	MAXIMUM CAR TRAVEL
300 FPM	19"	90 Ft.
	25"	150 Ft.
	19"	70 Ft.
	25"	120 Ft.
250 FPM	19"	60 Ft.
	25"	90 Ft.

	FACE OF DRUM	MAXIMUM CAR TRAVEL
300 FPM	19"	70 Ft.
	25"	120 Ft.
250 FPM	19"	60 Ft.
	25"	90 Ft.

NOTE - WHEN FIGURING FOR SUPPORTS USE 8000 LBS FIBRE STRESS FOR STEEL.
SUPPORTS MARKED AA-BB BY OWNER

LAYOUT NO. HTB 220
STANDARD DRUM TYPE PASSENGER ELEVATOR
OTIS-FENSOM ELEVATOR COMPANY LIMITED
TORONTO --- CANADA

No. HTB 220

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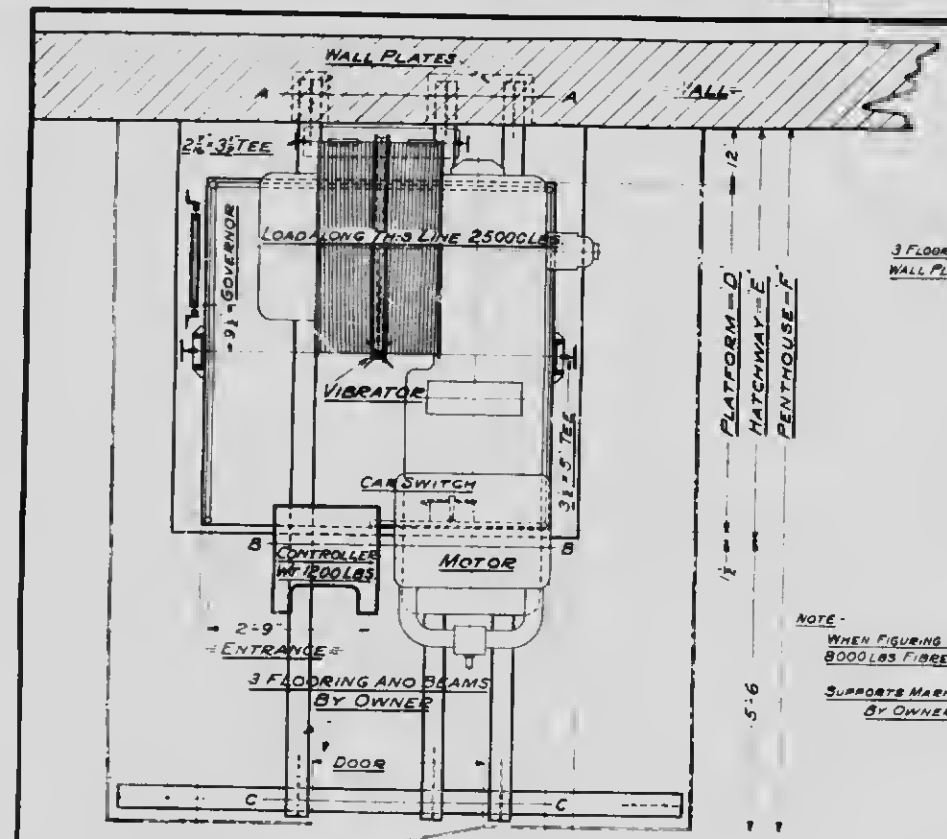
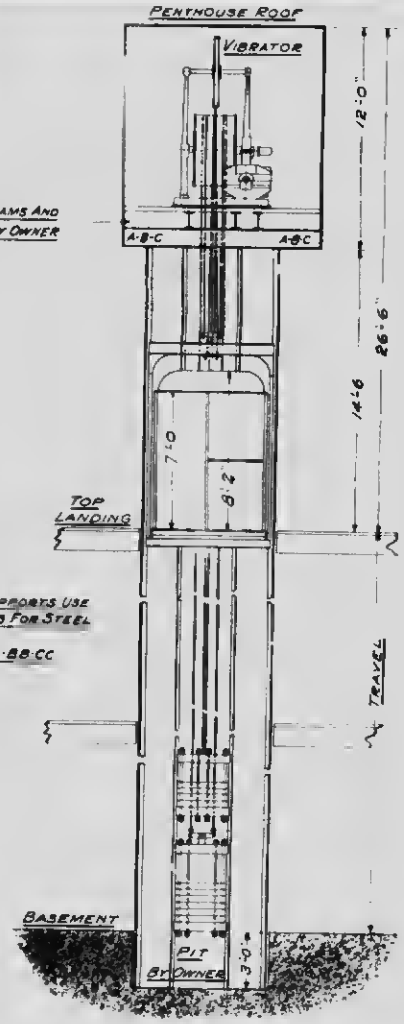




NOTE -
WHEN FIGURING FOR SUPPORTS USE 8000 LBS FIBRE STRESS FOR STEEL

SUPPORTS MARKED AA·BB·CC BY OWNER

No. HTB230

CONTINUED ON NEXT PAGE

TYPE A 41H DIR CURRENT DIRECT CONNECTED PASSENGER

MACHINE CAPACITY 2000 LBS AT 300 FT PER MIN
MACHINE CAPAC. TY 2400 LBS AT 250 FT PER MIN

PLATFORM SIZE	A	B	C	D	E	F
5'-0" × 5'-0"	5'-0"	6'-0"	9'-0"	5'-0"	6'-1½"	11'-7½"
6'-0" × 5'-0"	6'-0"	7'-0"	10'-0"	5'-0"	6'-1½"	11'-7½"
6'-0" × 6'-0"	6'-0"	7'-0"	10'-0"	6'-0"	7'-1½"	12'-7½"

SPEED OF CAR	DIAM OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL
300 FPM	44"	19"	50 FT
		25"	100 FT
250 FPM	36"	19"	40 FT
		25"	80 FT

MACHINE CAPACITY 2800 LBS AT 300 FT PER MIN
MACHINE CAPACITY 3200 LBS. AT 250 FT PER MIN

PLATFORM SIZE	A	B	C	D	E	F
6'-0" × 6'-0"	6'-0"	7'-0"	10'-0"	6'-0"	7'-1½"	12'-7½"
7'-0" × 6'-0"	7'-0"	8'-0"	11'-0"	6'-0"	7'-1½"	12'-7½"

SPEED OF CAR	DIAM OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL
300 FPM	44"	19"	35 FT
		25"	70 FT
250 FPM	36"	19"	30 FT
		25"	60 FT

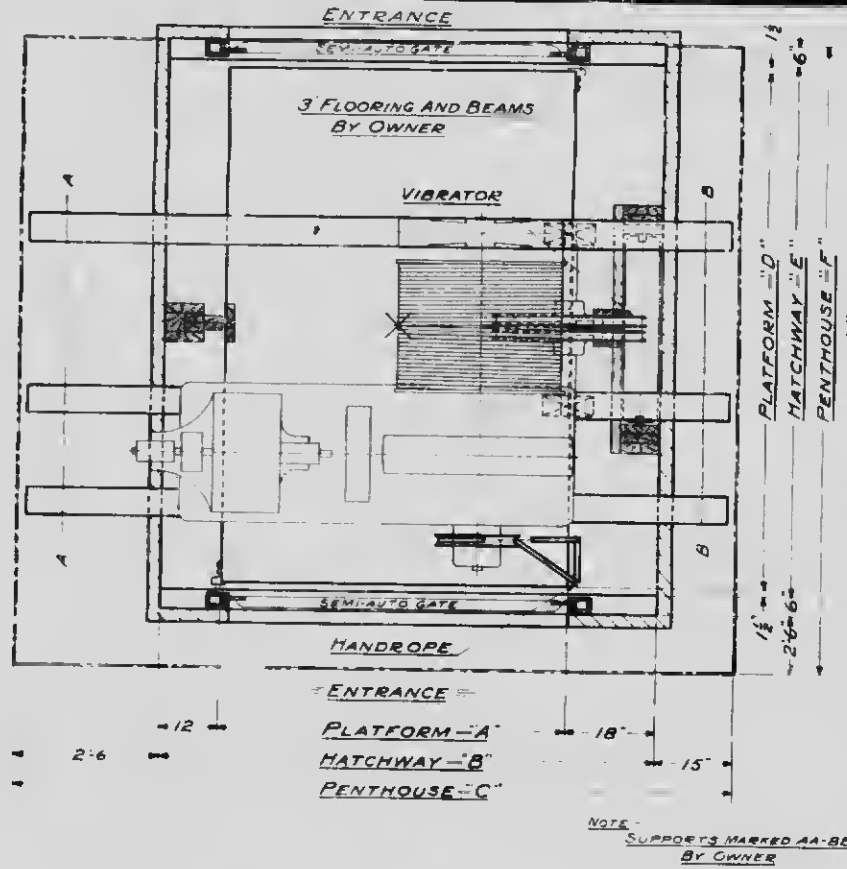
LAYOUT NO HTB230

STANDARD DRUM TYPE PASSENGER ELEVATOR

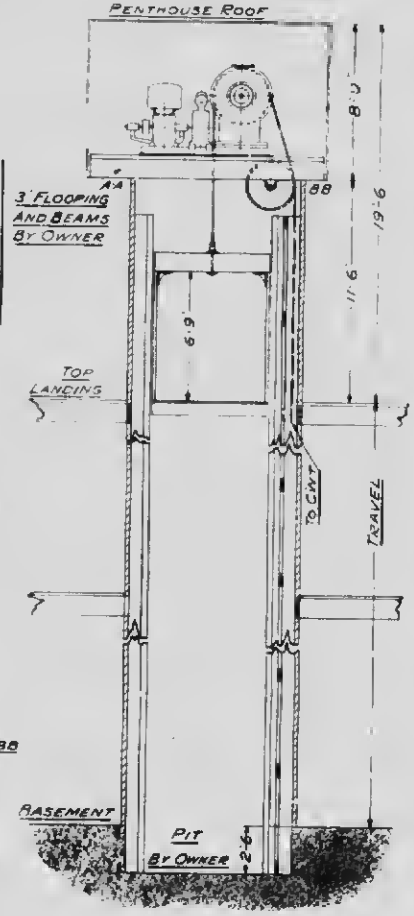
OTIS-FENSOM ELEVATOR COMPANY LIMITED

TORONTO — CANADA

OTIS-FENSOM ELEVATOR CO., LIMITED



NOTE - SUPPORTS MARKED AA-BB BY OWNER



TYPE "A30A" DIR CURRENT DIRECT CONNECTED FREIGHT

MACHINE CAPACITY 3000 AND 4000 LBS								MACHINE CAPACITY 5000 AND 6000 LBS							
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"		PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	
5'-0" × 6'-0"	5'-0"	7'-6"	11'-3"	6'-0"	6'-3"	9'-9"		6'-0" × 7'-0"	6'-0"	8'-6"	12'-3"	7'-0"	7'-3"	10'-9"	
6'-0" × 7'-0"	6'-0"	8'-6"	12'-3"	7'-0"	7'-3"	10'-9"		6'-0" × 9'-0"	6'-0"	8'-6"	12'-3"	9'-0"	9'-3"	12'-9"	
6'-0" × 8'-0"	6'-0"	8'-6"	12'-3"	8'-0"	8'-3"	11'-9"		7'-0" × 10'-0"	7'-0"	9'-6"	13'-3"	10'-0"	10'-3"	13'-9"	

SPEED OF CAR	DIAM OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL 4 CABLES	MAXIMUM CAR TRAVEL 6 CABLES
100 FPM	34"	15"	35'-0"	
		22"	70'-0"	
		26"	90'-0"	
75 FPM	30"	15"	25'-0"	
		22"	60'-0"	
		26"	80'-0"	

SPEED OF CAR	DIAM OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL 4 CABLES	MAXIMUM CAR TRAVEL 6 CABLES
75 FPM	30"	15"	50'-0"	15'-0"
		22"	55'-0"	40'-0"
		26"	75'-0"	60'-0"
50 FPM	30"	15"	20'-0"	15'-0"
		22"	55'-0"	40'-0"
		26"	75'-0"	60'-0"

LAYOUT No A 9110

STANDARD DRUM TYPE FREIGHT ELEVATOR

OTIS-FENSOM ELEVATOR COMPANY LIMITED

TORONTO — CANADA

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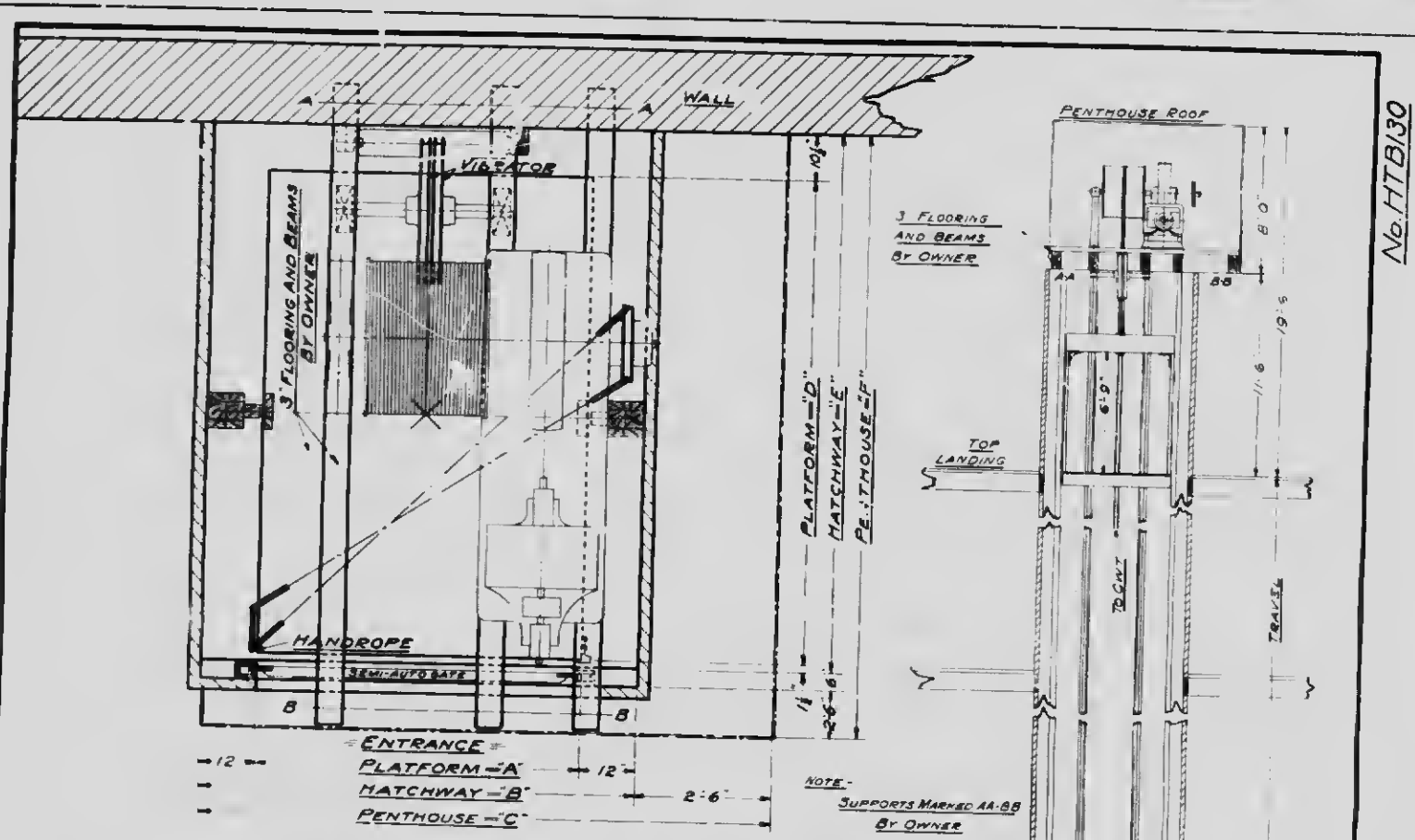

No. HTB130

TYPE "A30A" DIR CURRENT DIRECT CONNECTED FREIGHT

MACHINE CAPACITY 3000 AND 4000 LBS.

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"
5'-0" × 6'-0"	5'-0"	7'-0"	9'-6"	6'-0"	7'-0"	10'-0"
6'-0" × 7'-0"	6'-0"	8'-0"	10'-6"	7'-0"	8'-0"	11'-0"
6'-0" × 8'-0"	6'-0"	8'-0"	10'-6"	8'-0"	9'-0"	12'-0"

SPEED OF CAR	DIAM OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL ½ CABLES
100 FPM	34	15"	35'-0"
		22"	70'-0"
		26"	90'-0"
75 FPM	30	15"	25'-0"
		22"	60'-0"
		26"	80'-0"

MACHINE CAPACITY 5000 AND 6000 LBS.

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"
6'-0" × 7'-0"	6'-0"	8'-0"	10'-6"	7'-0"	8'-0"	11'-0"
6'-0" × 9'-0"	6'-0"	9'-0"	10'-6"	9'-0"	10'-0"	13'-0"
7'-0" × 10'-0"	7'-0"	10'-0"	11'-6"	10'-0"	11'-0"	14'-0"

SPEED OF CAR	DIAM OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL ½ CABLES	MAXIMUM CAR TRAVEL ¾ CABLES
75 FPM	30	15"	20'-0"	15'-0"
		22"	55'-0"	40'-0"
		26"	75'-0"	60'-0"
50 FPM	30	15"	20'-0"	15'-0"
		22"	45'-0"	40'-0"
		26"	75'-0"	60'-0"

LAYOUT NO HTB130

STANDARD DRUM TYPE FREIGHT ELEVATOR

OTIS FENSOM ELEVATOR COMPANY LIMITED

TORONTO — CANADA

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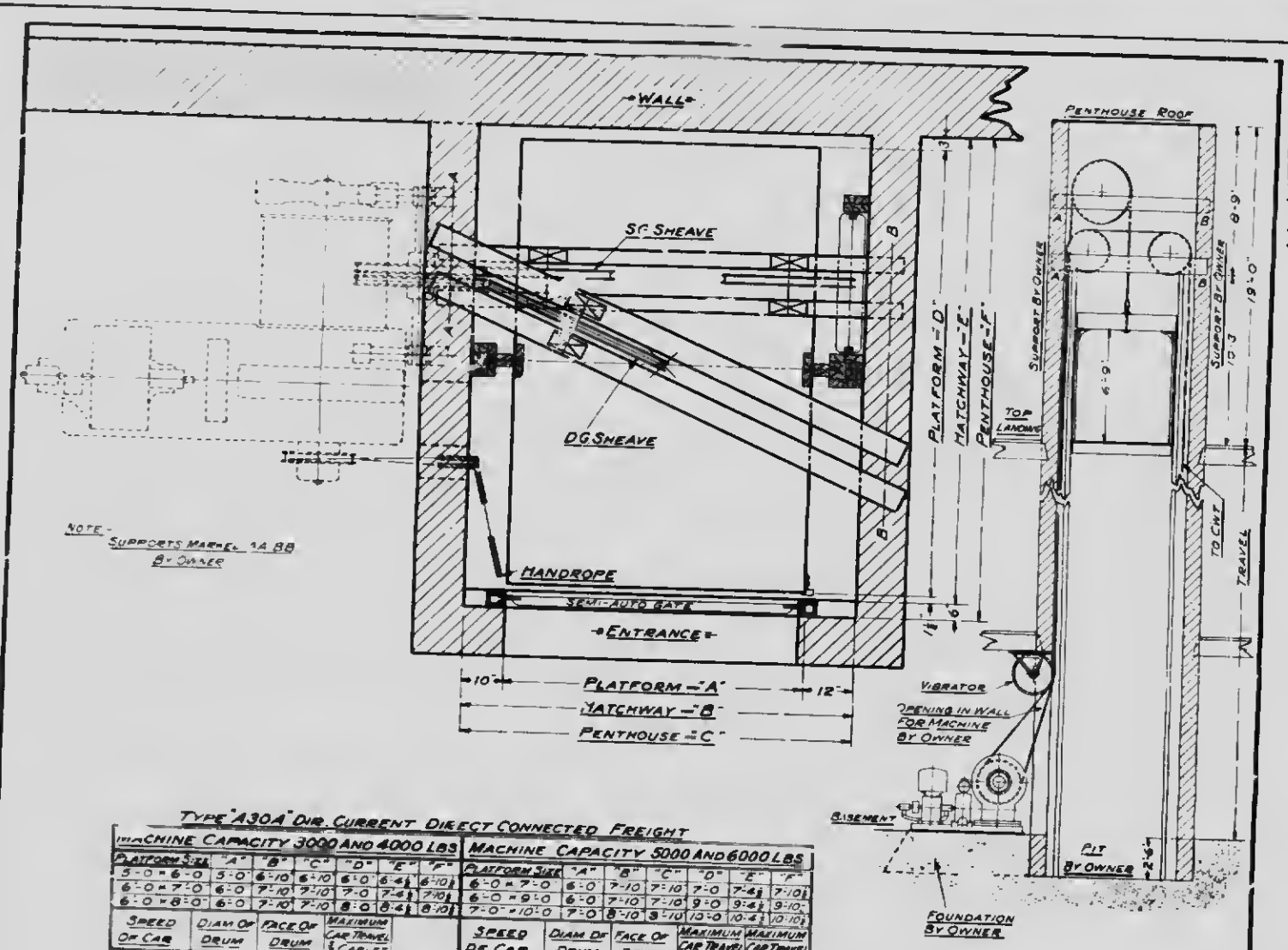

No. HTB150

TYPE "A30A" DIR. CURRENT DIRECT CONNECTED FREIGHT

MACHINE CAPACITY 3000 AND 4000 LBS

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"
5'-0" × 6'-0"	5'-0"	6'-10"	6'-10"	6'-0"	6'-4½"	6'-10½"
6'-0" × 7'-0"	6'-0"	7'-10"	7'-10"	7'-0"	7'-4½"	7'-10½"
6'-0" × 8'-0"	6'-0"	7'-10"	7'-10"	8'-0"	8'-4½"	8'-10½"

SPEED OF CAR	DIAM OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL ¾ CABLES	
100 FPM	34"	15"	40'-0"	
		22"	80'-0"	
		26"	100'-0"	
75 FPM	30"	13"	30'-0"	
		22"	70'-0"	
		26"	90'-0"	

MACHINE CAPACITY 5000 AND 6000 LBS

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"
6'-0" × 7'-0"	6'-0"	7'-10"	7'-10"	7'-0"	7'-4½"	7'-10½"
6'-0" × 9'-0"	6'-0"	7'-10"	7'-10"	9'-0"	9'-4½"	9'-10½"
7'-0" × 10'-0"	7'-0"	8'-10"	8'-10"	10'-0"	10'-4½"	10'-10½"

SPEED OF CAR	DIAM OF DRUM	FACE OF DRUM	MAXIMUM CAR TRAVEL ¾ CABLES	MAXIMUM CAR TRAVEL ½ CABLES
75 FPM	30"	13"	20'-0"	15'-0"
		22"	60'-0"	45'-0"
		26"	80'-0"	65'-0"
50 FPM	30"	15"	20'-0"	15'-0"
		22"	60'-0"	45'-0"
		26"	80'-0"	65'-0"

LAYOUT NO. HTB150

STANDARD DRUM TYPE FREIGHT ELEVATOR

OTIS-FENSOM ELEVATOR COMPANY LIMITED

TORONTO — CANADA

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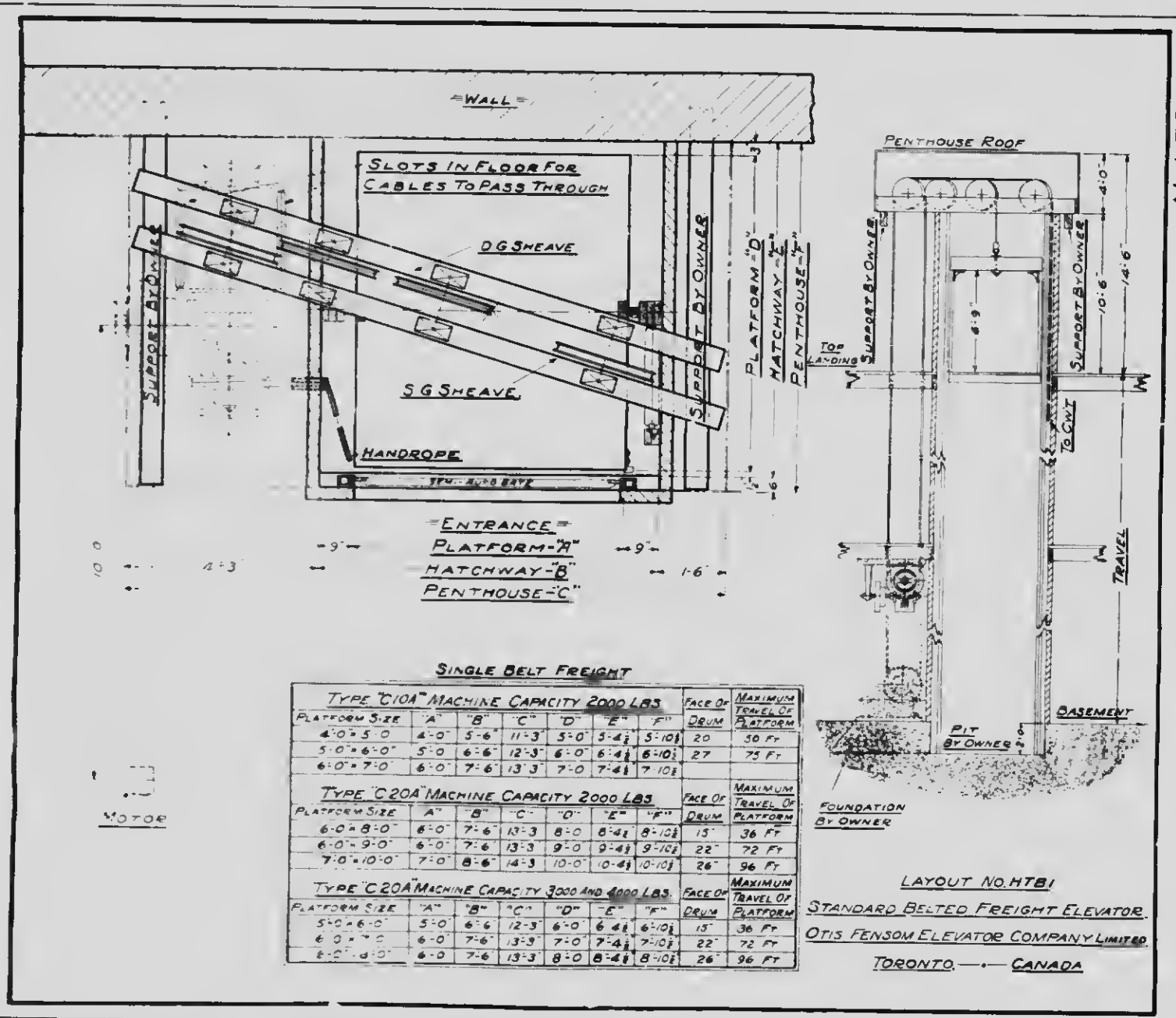

SINGLE BELT FREIGHT

TYPE "C10A" MACHINE CAPACITY 2000 LBS.							FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"		
4'-0" × 5'-0"	4'-0"	5'-6"	11'-3"	5'-0"	5'-4½"	5'-10½"	20"	50 FT
5'-0" × 6'-0"	5'-0"	6'-6"	12'-3"	6'-0"	6'-4½"	6'-10½"	27"	75 FT
6'-0" × 7'-0"	6'-0"	7'-6"	13'-3"	7'-0"	7'-4½"	7'-10½"		

TYPE "C20A" MACHINE CAPACITY 2000 LBS.							FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"		
6'-0" × 8'-0"	6'-0"	7'-6"	13'-3"	8'-0"	8'-4½"	8'-10½"	15"	36 FT
6'-0" × 9'-0"	6'-0"	7'-6"	13'-3"	9'-0"	9'-4½"	9'-10½"	22"	72 FT
7'-0" × 10'-0"	7'-0"	8'-6"	14'-3"	10'-0"	10'-4½"	10'-10½"	26"	96 FT

TYPE "C20A" MACHINE CAPACITY 3000 AND 4000 LBS.							FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"		
5'-0" × 6'-0"	5'-0"	6'-6"	12'-3"	6'-0"	6'-4½"	6'-10½"	15"	36 FT
6'-0" × 7'-0"	6'-0"	7'-6"	13'-3"	7'-0"	7'-4½"	7'-10½"	22"	72 FT
6'-0" × 8'-0"	6'-0"	7'-6"	13'-3"	8'-0"	8'-4½"	8'-10½"	26"	96 FT

LAYOUT NO. HTB1

STANDARD BELTED FREIGHT ELEVATOR

OTIS FENSOM ELEVATOR COMPANY LIMITED

TORONTO — CANADA

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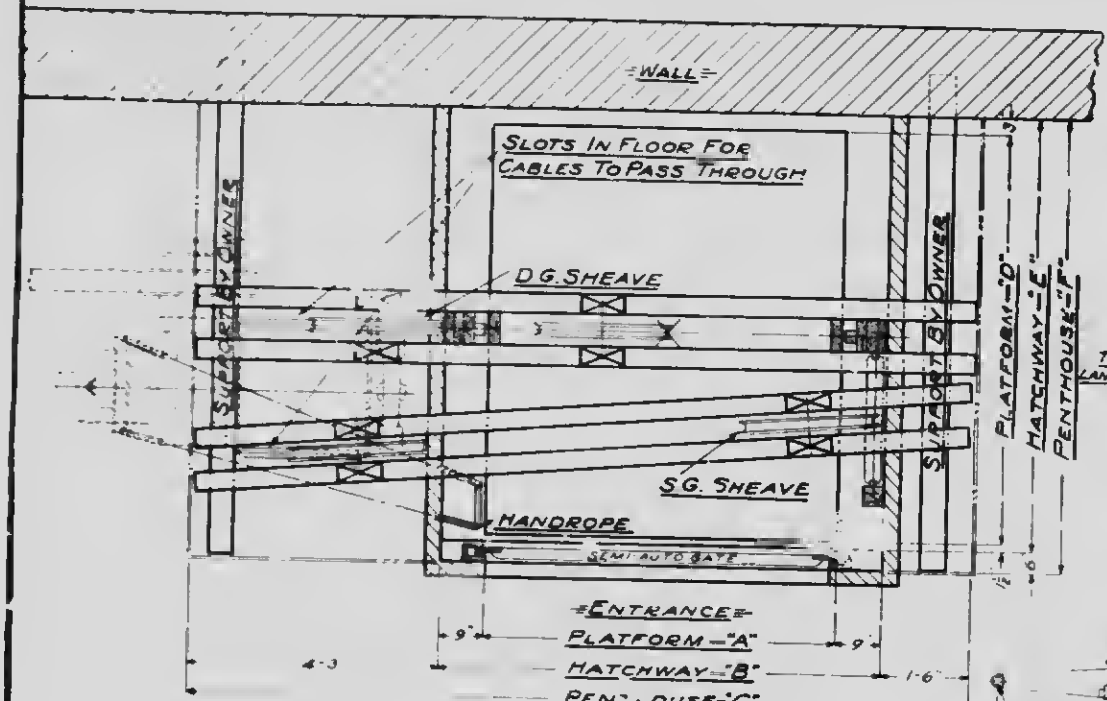

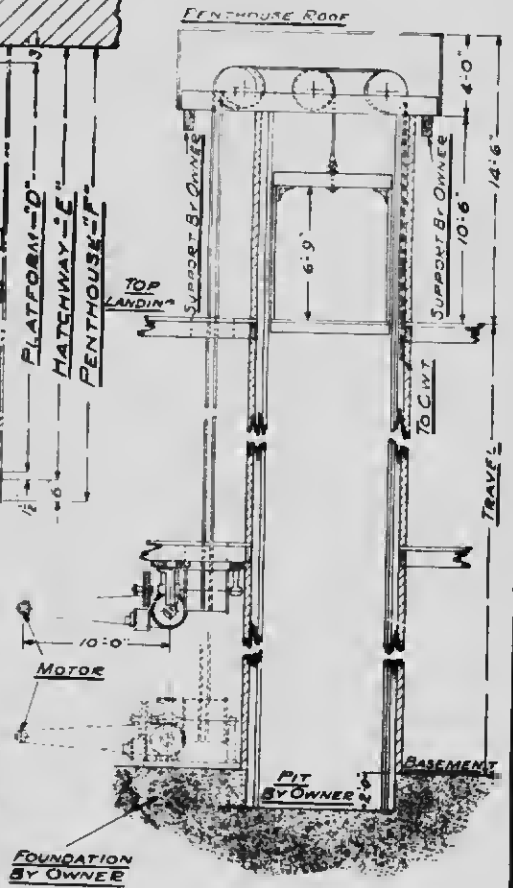

No. HTB3

SINGLE BELT FREIGHT

TYPE "C10A" MACHINE CAPACITY 2000 LBS.							FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"		
4'-0" × 5'-0"	4'-0	5'-6"	11'-3	5'-0	5'-4½	5'-10½	20	50 Ft
5'-0" × 6'-0"	"	6'-6"	12'-3	6'-0	6'-4½	6'-10½	27"	75 Ft
6'-0" × 7'-0"	"	7'-6"	13'-3	7'-0	7'-4½	7'-10½		

TYPE C20A" MACHINE CAPACITY 2000 LBS							FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"		
6'-0" × 8'-0"	6'-0"	7'-6"	13'-3	8'-0"	8'-4½	8'-10½	15"	36 Ft
6'-0" × 9'-0"	6'-0"	7'-6"	13'-3	9'-0	9'-4½	9'-10½	22"	72 Ft
7'-0" × 10'-0"	7'-0	8'-6"	14'-3	10'-0"	10'-4½	10'-10½	26"	96 Ft

TYPE "C20A" MACHINE CAPACITY 3000 AND 4000 LBS							FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"		
5'-0" × 6'-0"	5'-0	6'-6"	12'-3	6'-0	6'-4½	6'-10½	15"	36 Ft
6'-0" × 7'-0"	6'-0	7'-6"	13'-3	7'-0"	7'-4½	7'-10½	22"	72 Ft
6'-0" × 8'-0"	6'-0	7'-6"	13'-3	8'-0"	8'-4½	8'-10½	26"	96 Ft.

LAYOUT NO. HTB3

STANDARD BELTED FREIGHT ELEVATOR.

OTIS-FENSOM ELEVATOR COMPANY LIMITED.

TORONTO. — CANADA.

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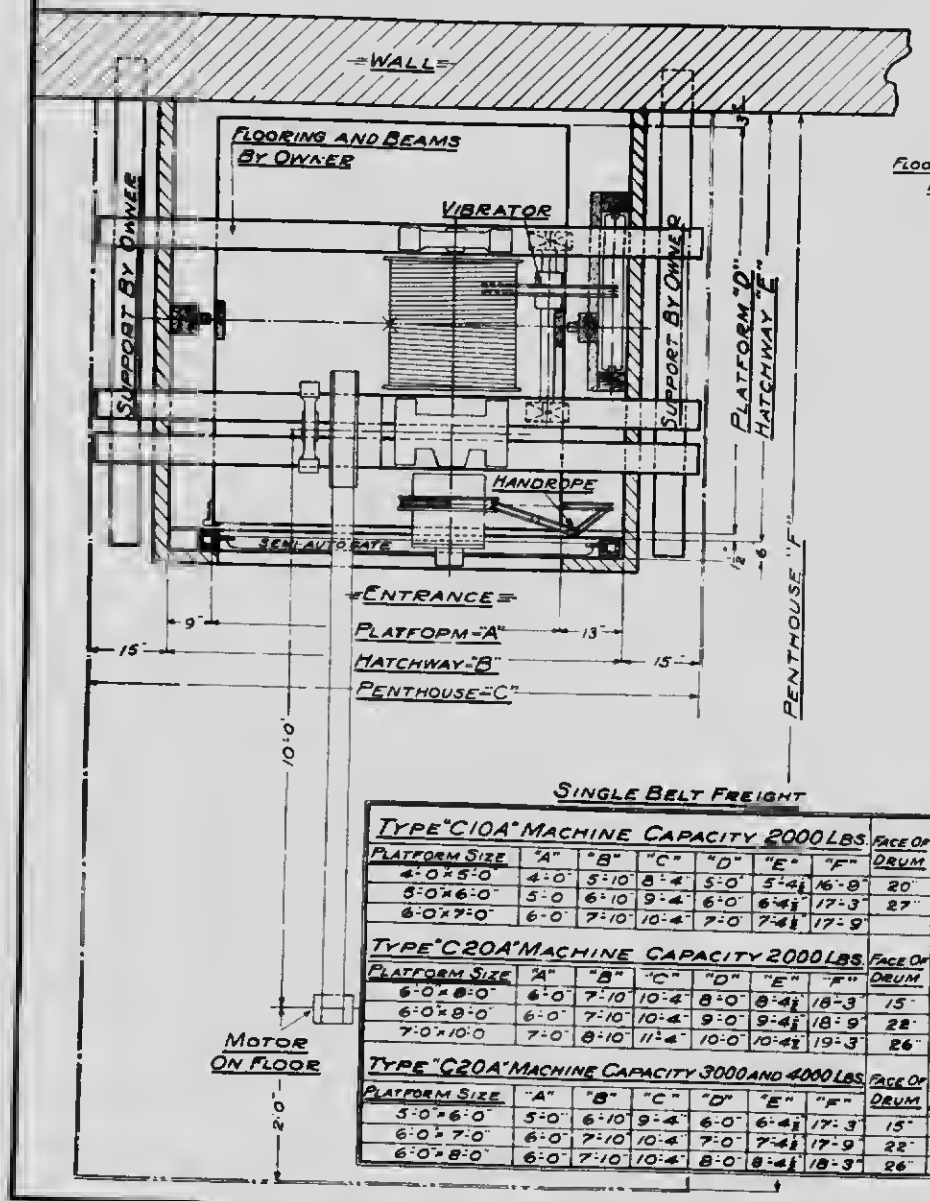

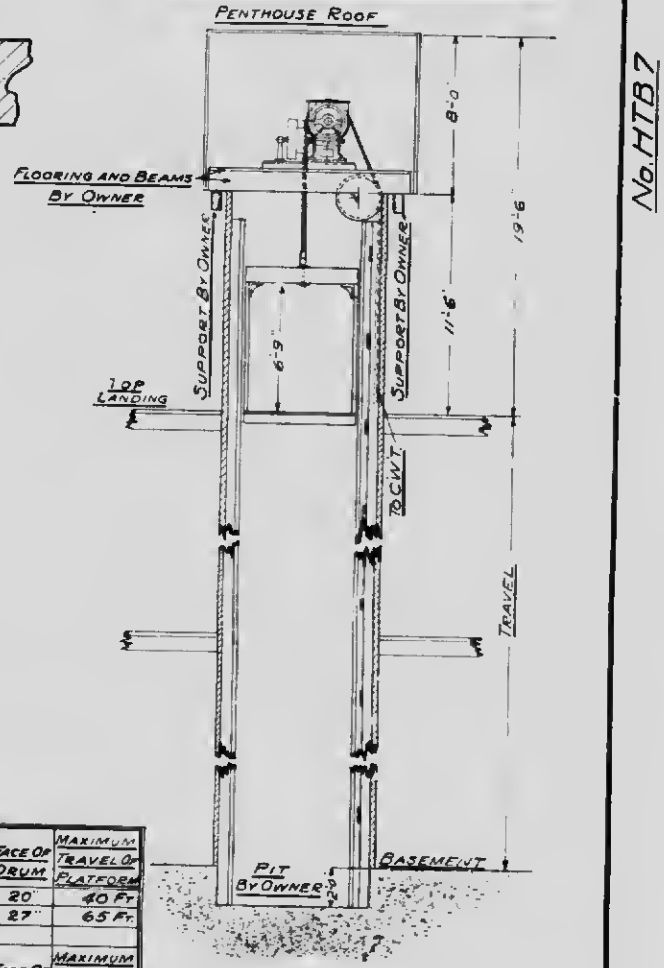

No. HT87

SINGLE BELT FREIGHT

TYPE "C10A" MACHINE CAPACITY 2000 LBS.							FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"		
4'-0" × 5'-0"	4'-0"	5'-10"	8'-4"	5'-0"	5'-4½"	16'-8"	20"	40 Ft.
5'-0" × 6'-0"	5'-0"	6'-10"	9'-4"	6'-0"	6'-4½"	17'-3"	27"	65 Ft.
6'-0" × 7'-0"	6'-0"	7'-10"	10'-4"	7'-0"	7'-4½"	17'-9"		

TYPE "C20A" MACHINE CAPACITY 2000 LBS.							FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"		
6'-0" × 8'-0"	6'-0"	7'-10"	10'-4"	8'-0"	8'-4½"	18'-3"	15"	30 Ft.
6'-0" × 9'-0"	6'-0"	7'-10"	10'-4"	9'-0"	9'-4½"	18'-9"	22"	60 Ft.
7'-0" × 10'-0"	7'-0"	8'-10"	11'-4"	10'-0"	10'-4½"	19'-3"	26"	80 Ft.

TYPE "C20A" MACHINE CAPACITY 3000 AND 4000 LBS.							FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"		
5'-0" × 6'-0"	5'-0"	6'-10"	9'-4"	6'-0"	6'-4½"	17'-3"	15"	30 Ft.
6'-0" × 7'-0"	6'-0"	7'-10"	10'-4"	7'-0"	7'-4½"	17'-9"	22"	60 Ft.
6'-0" × 8'-0"	6'-0"	7'-10"	10'-4"	8'-0"	8'-4½"	18'-3"	26"	80 Ft.

LAYOUT NO. HT87

STANDARD BELTED FREIGHT ELEVATOR

OTIS-FENSOM ELEVATOR COMPANY LIMITED.

TORONTO —"— CANADA.

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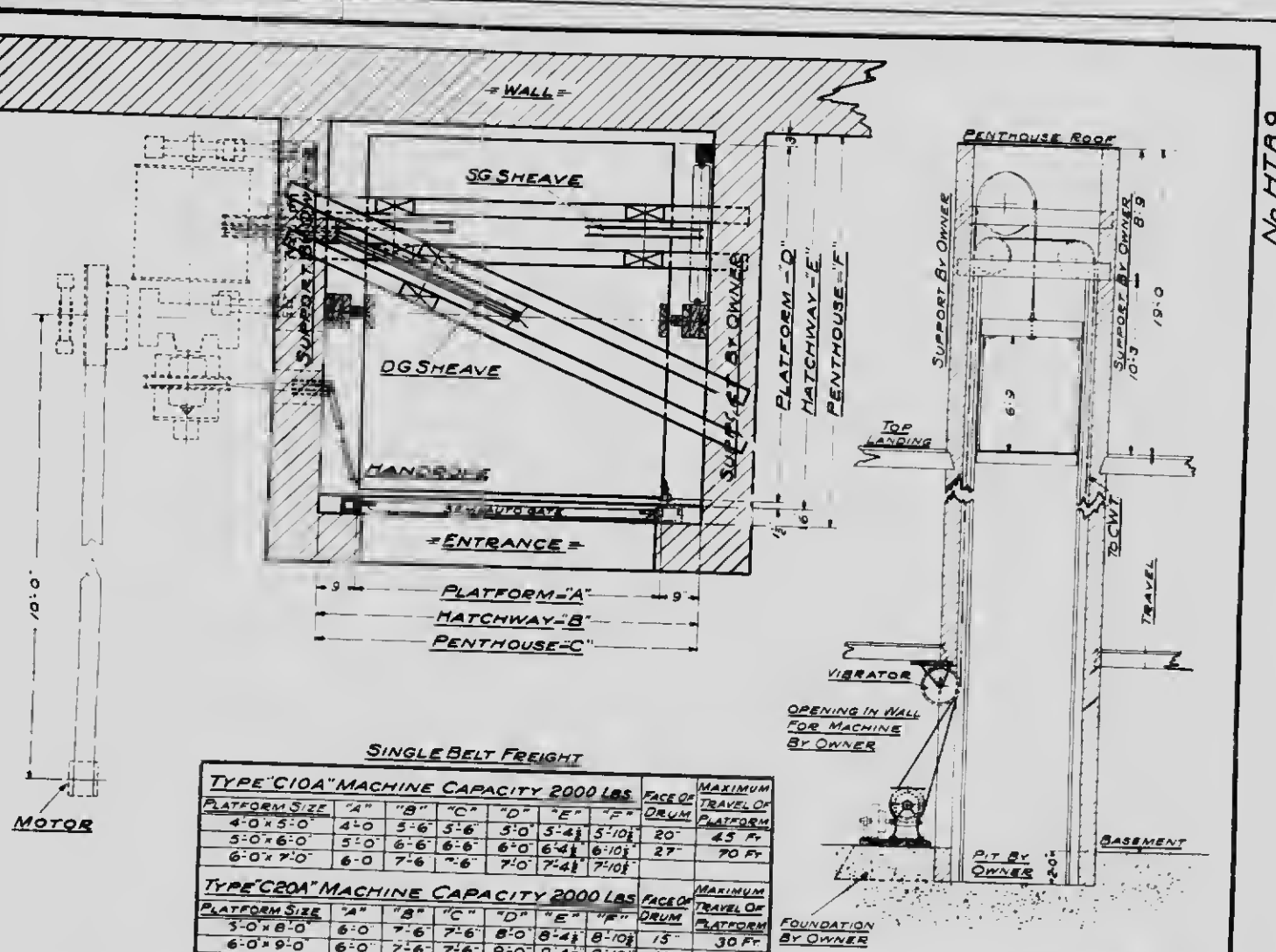

No. HTB 9

SINGLE BELT FREIGHT

TYPE "C10A" MACHINE CAPACITY 2000 LBS

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
4'-0" x 5'-0"	4'-0"	5'-6"	5'-6"	5'-0"	5'-4½"	5'-10½"	20"	45 Ft
5'-0" x 6'-0"	5'-0"	6'-6"	6'-6"	6'-0"	6'-4½"	6'-10½"	27"	70 Ft
6'-0" x 7'-0"	6'-0"	7'-6"	7'-6"	7'-0"	7'-4½"	7'-10½"		

TYPE "C20A" MACHINE CAPACITY 2000 LBS

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
5'-0" x 8'-0"	6'-0"	7'-6"	7'-6"	8'-0"	8'-4½"	8'-10½"	15"	30 Ft
6'-0" x 9'-0"	6'-0"	7'-6"	7'-6"	9'-0"	9'-4½"	9'-10½"	22"	65 Ft
7'-0" x 10'-0"	7'-0"	8'-6"	8'-6"	10'-0"	10'-4½"	10'-10½"	26"	85 Ft.

TYPE "C20A" MACHINE CAPACITY 3000 AND 4000 LBS

PLATFORM SIZE	"A"	"B"	"C"	"D"	"E"	"F"	FACE OF DRUM	MAXIMUM TRAVEL OF PLATFORM
5'-0" x 6'-0"	5'-0"	6'-6"	6'-6"	6'-0"	6'-4½"	6'-10½"	15"	30 Ft
6'-0" x 7'-0"	6'-0"	7'-6"	7'-6"	7'-0"	7'-4½"	7'-10½"	22"	65 Ft.
6'-0" x 8'-0"	6'-0"	7'-6"	7'-6"	8'-0"	8'-4½"	8'-10½"	26"	85 Ft

LAYOUT NO. HTB 9

STANDARD BELTED FREIGHT ELEVATOR

OTIS-FENSOM ELEVATOR COMPANY LIMITED

TORONTO, — « — CANADA.

CONTINUED ON NEXT PAGE

OTIS-FENSOM ELEVATOR CO., LIMITED

MANUFACTURERS OF

PASSENGER ESCALATORS AND INCLINED FREIGHT ELEVATORS.

OTIS-FENSOM BUILDING, 50 BAY STREET,
TORONTO, ONT.

OFFICES IN ALL PRINCIPAL CITIES OF CANADA.

PASSENGER ESCALATOR

INCLINED FREIGHT ELEVATOR.

PASSENGER ESCALATORS.

Where rapid and continuous inter-floor conveyance is required, the excessive demands upon the platform elevator may be greatly relieved by the installation of an Otis-Fensom Escalator. It operates continuously in either direction, there being no stops to take on or let off passengers. The capacity of an escalator is practically unlimited, and it continues to deliver passengers on the floor above while taking them on at the floor below. It is readily seen that to conserve time and prevent congestion at the terminals, passengers must be handled continuously, and not intermittently.

The above cut illustrates the Otis-Fensom Step Type Passenger Escalator, and the operation is simplicity itself. Starting in a moving platform on a line with the floor it travels forward, forming itself into a perfect stairway; this stairway moves upward to the higher level, where the passengers step off on to the floor. Moving hand rails are provided at the side, and on reaching the top, passengers are gradually and safely edged off on to the floor without the slightest risk of accident or inconvenience.

This type of equipment is now in use in many of the leading Department Stores, Mills and Factories, as well as in Railroad, Subway and Elevated Stations. The advantages of this method of handling large crowds of people are self-evident.

INCLINED FREIGHT ELEVATORS.

For rises up to 15 feet, the Inclined Freight Elevator possesses many unique advantages. No time or power is lost in starting or stopping to load or unload. The machinery is easy of access and accidents are unknown, and where the handling of merchandise is continuous, congestion is relieved by the use of one of these equipments, as a truckman bringing his loaded truck to the incline, the flange or lug of the elevator engages with the truck, and the man, truck and load are transported from level to level without physical effort. It will be noted that the Inclined Elevator has a capacity of continuously carrying as many trucks as can be loaded on its length, and there is no waiting, as it is always ready to receive a fresh load no matter how quickly it follows on the last load placed upon it.

This type of equipment is made for various conditions, one particularly useful type being the Dock Inclined Elevator, where it is necessary to meet the variation in heights of vessels due to tides and draught. The upper socket is centered on a hinge at the top of the incline, enabling the lower end of the elevator to be raised or lowered at will.

We will be pleased to furnish, without obligation, full particulars regarding installation and cost.

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CANADIAN OFFICE, 50 YONGE STREET,
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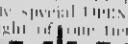
FACILITIES

We were the pioneers in the manufacture of Library Bookstacks. Our experienced stack designers are at the service of architects planning stack installations. Catalogue describing bookstack and library construction and giving many plans and illustrations of libraries sent on request. Technical information also furnished free.

DESCRIPTION

The Snead Standard Stack is installed throughout the Library of Congress at Washington and the New York Public Library. The simple construction fits it for use, not only in large, but also in smaller libraries, with but a single or a few stack tiers (stories), and also for offices and private libraries requiring merely plain wall shelving. The interchangeability of parts and the adaptable construction allows the stack, in case of remodelling, to be re-set and extended both horizontally and vertically. Stack consists of solid or open work cast iron and steel uprights extending full width of ranges and spaced shelf length apart by fixed shelves at top and bottom. The adjustably shelves are preferably of the special OPEN BAR construction, light, resilient and free from dust-collecting surfaces. The uprights are each the height of one tier and may be bolted one above the other to obtain a stack of any number of stories. The uprights () in section occupy no available book room, and are entirely free from filth-collecting hollow spaces. Deck floors or galleries between tiers give direct access to all shelves. The deck floor construction is carried by the uprights and firmly anchored to the walls of the stack room. Floors of rooms above without concentrated loads are economically carried on stack construction. Cover plates at top protect books from dust and injury, and cornice gives a neat finish. Open work construction of uprights and shelves, and slits in the deck floors allow stack to be heated and ventilated as one great room. The system can be adapted to meet any requirements of architectural plan and design.

Adjustable shelves are completely finished at shop with baked black rubber japan. Fixed metal parts are preferably finished after erection with air drying enamel, baked enamel is unsuitable, as it cannot be renewed in place. Maximum distribution of light is obtained by using open work construction where possible and finishing fixed parts in white.

METAL SHELVING.

Our products cover shelving for special requirements and conditions, and for all purposes where fire-proof storage and durability are essential.

PRICES

Cost of stacks depends largely upon arrangement and varies from 50 cents to $1.00 or more per lineal foot of shelving. Specifications, drawings and estimates furnished free on request. Bookstacks are built on contract. Four or five months should be allowed for the completion of an ordinary stack of about 100,000 volumes capacity.

Snead Standard Stack, Ontario Legislative Library, Toronto. George W. Gumbleck, Architect. Similar Stacks made without ledge if desired.

BOOK CAPACITIES

Average per lineal foot of shelf

Patent Specifications	4 volumes
Law, Public Documents and Bound Periodicals	6 volumes
Mydicine and Science	7 volumes
Reference and General Literature	8 volumes
Economics and Fiction	9 volumes
Circulating Books	9 to 10 volumes

STANDARD DIMENSIONS

(Special sizes built to order if quantity warrants)

Shelf widths.—For books, 8 inches usually; also 10 inches and 12 inches; for newspapers, 22 inches.

Shelf lengths.—3 feet average, varied to suit conditions.

Tier heights.—7 feet and 7 feet 6 inches.

Aisle widths.—Main, 2 feet 6 inches to 5 feet. Minor, about 28 inches minimum, 30 to 36 inches average.

WEIGHTS.

Uprights and shelves, 7 to 10 lbs. per run. ft.
Books, 20 to 25 lbs. per run. ft.
Deck framing, 5 lbs. per sq. ft.
Deck flooring, $\frac{3}{4}$-inch glass, 10 lbs. per sq. ft.
Deck flooring, $1\frac{1}{4}$-inch marble, 18 lbs. per sq. ft.

REFERENCES.

Some typical Snead Stack Installations in Canada.

Ontario Legislative Library, Toronto — George W. Gumbleck, Architect
Alberta Legislative Library, Edmonton — John Chalmers, Engr.
Toronto Public Reference Library — Wickson & Gregg and A. H. Chapman, Architects.
Ottawa Public Library — Edgar L. Horwood, Architect
McGill University Medical Library, Montreal — Brown & Vallance, Architects
Victoria College Library, Toronto — Sproatt & Rolph, Architects
Calgary Public Library — Hodgson, Bates & Burnett, Architects
Regina Public Library — Story & Van Egmond, Architects
Bibliotheque St. Sulpice, Montreal — Eugene Payette, Architect
Hamilton Public Library — A. W. Peene, Architect
Fort William Public Library — Hood & Seall, Architects
Moose Jaw Public Library — Reid & McAlum, Architects
Knox College Library, Toronto — Chapman & McGinn, Architects
British Columbia Provincial Library, Victoria — F. M. Rattenbury, Architect
Saskatchewan Legislative Library, Regina — Edw. & W. S. Maxwell, Architects
Calgary Court House, Calgary, Alberta — Richard R. Blakey, Provincial Architect
Edmonton Court House, Edmonton, Alberta — Richard R. Blakey, Provincial Architect

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Special designs furnished, if desired for every description of work.

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Interior of Head Office, Bank of Toronto.
Carrere & Hastings and E. G. Bird, Architects.
Cast Bronze Railings, Window Frames and Glazed Dome. Dome contains fifteen tons of Bronze Metal.

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ARCHITECTURAL BRONZE & IRON WORKS

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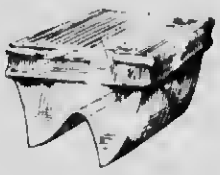
ABIWAY PAVEMENT LIGHTS AND SKYLIGHTS.

We make Abiway Pavement Lights in various designs of glass and frame construction. Good pavement light work depends largely upon the skill with which the glass is set in cement. Good glass allows more light to pass through than cheap glass.



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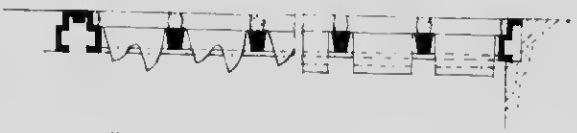
SQUARE TRIPLE PRISM GLASS FOR STEEL FRAMES OR CAST IRON FRAMES

ROUND SINGLE PRISM GLASS FOR REINFORCED CONCRETE



FRAMES IN CAST IRON, WITH NON SLIP BORDERS

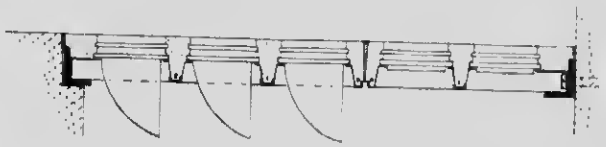
We can cover surface of iron frames with lead filled safety tread, if desired.

FRAMES IN CAST IRON, WITH STEEL ANGLE BORDERS, NON SLIP RIBS IN CAST IRON

We can combine prism glass and plain glass in the same frames to suit any arrangement.

FRAMES IN STEEL BARS, WITH CAST IRON NON SLIP BORDERS

We can insert lead strip in concrete between glass to help insure non-slipping quality, if desired.



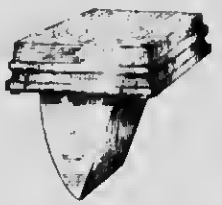
FRAMES IN REINFORCED CONCRETE, WITH PERMANENT GALVANIZED IRON CENTERING ON STEEL ANGLE SUPPORTS

There are no better pavement lights than Abiway.

We use only the very best glass obtainable.

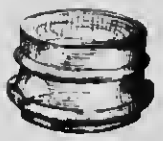
We guarantee our work against leakage.

PLAIN SQUARE GLASS FOR REINFORCED CONCRETE



SQUARE SINGLE PRISM GLASS FOR STEEL FRAMES OR CAST IRON FRAMES

PLAIN SQUARE GLASS FOR STEEL FRAMES OR CAST IRON FRAMES



PLAIN ROUND GLASS FOR REINFORCED CONCRETE

THE ROBERT MITCHELL CO., LIMITED

ESTABLISHED 1851.

OFFICE AND FACTORY: BEL-AIR AVENUE, ST. HENRI,

MONTREAL, QUE.

PRODUCTS. ORNAMENTAL IRON, BRASS AND BRONZE WORK, INCLUDING BANK AND OFFICE FITTINGS, STAIR RAILS, TUBE RAILS, MEMORIAL TABLETS, BRONZE STORE FRONTS, OUTSIDE LANTERNS, AND STANDARDS IN BRONZE AND WROUGHT IRON, FIRE BASKETS, ANDIRONS, FENDERS, CURBS, FIRE SCREENS, ETC. HAND-FORGED COPPER, BRASS AND IRON FINE BRASS CASTINGS.

We also manufacture IRON FENCES AND GATES as illustrated below.

PLANT We have an extensive modern plant and experienced workmen, and are thus enabled to take care of the largest contracts in our line and make prompt deliveries.

These gates, 15 ft. high and 14 ft. 7 in. wide, are part of a fence 700 ft. long and 12 ft. high, erected by us for the late Geo. Tuckett, of Hamilton. Stewart & Whitton, Architects, Hamilton.

FACILITIES. We have increased our facilities for the manufacture and erection of Ornamental Iron Work and intend giving special attention to this department for the coming year.

We invite Architects and others to submit their designs for our prices. For ordinary work we have a great number of designs and photos of work done by us, which will be at the disposal of architects and engineers. Our designing and engineering staff is also at their service.

The following work is now on hand:

BUILDING	CITY	ARCHITECT.
Bank, British North America	Montreal	Barrot, Blackader & Webster.
Reford Building	Montreal	Ross & McDonald.
Versailles Building	Montreal	Ross & McDonald.
C.P.R. Station	Vancouver	Barrot, Blackader & Webster
Sir R. For[illegible], Residence	Montreal	Marchand & Haskell

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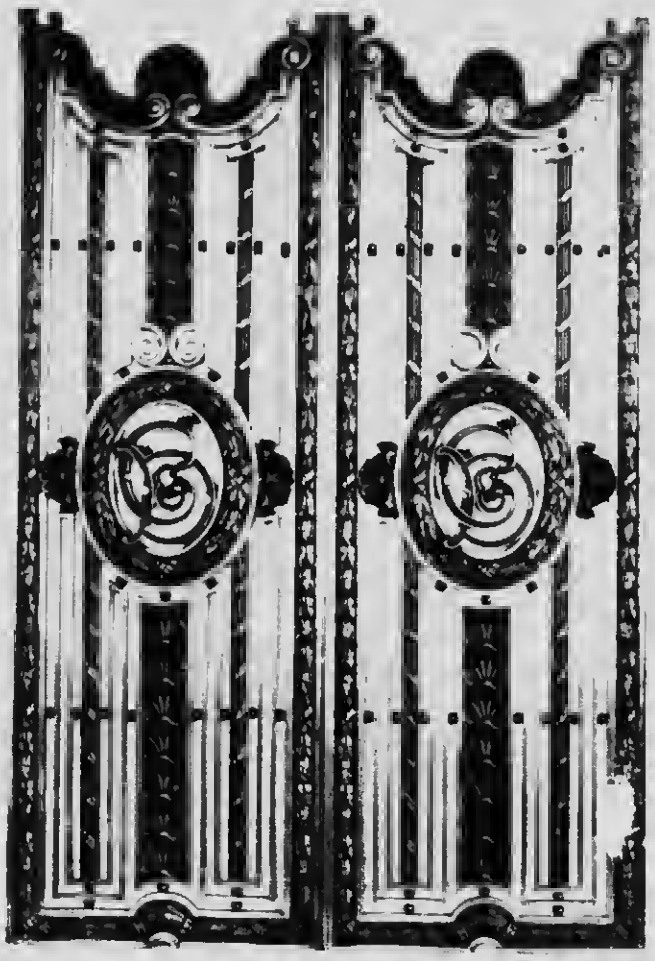
BANK AND OFFICE FITTINGS.

We have special facilities for furnishing Bronze and Brass Fittings for Banks and Offices, and shall be pleased to submit designs or photos of work done.



The above Bronze Door Grilles are installed at City and District Savings Bank, Montreal, Que

WORK EXECUTED.

The following are a few of the representative bank and office buildings which have been fitted up or lighted by us. We shall be pleased to co-operate with architects by furnishing information on standard bank work or quote prices on designs submitted by them.

BUILDING	CITY.	ARCHITECT.
Imperial Bank	Edmonton, Alta	Percy Barnes.
Banque d'Hochelaga	Montreal, Que.	A. H. Lapierre.
Banque d'Hochelaga	Ottawa, Ont.	A. H. Lapierre.
Banque d'Hochelaga and several Branches.	Three Rivers, Que.	A. H. Lapierre
La Caisse d'Economie	Quebec, Que.	R. P. Lemay.
City and District Savings Bank and several Branches.	Montreal, Que.	A. H. Lapierre.
Bank of Montreal and several Branches	Montreal, Que.	Peden & McLaren, Assoc. Archts.
Royal Bank of Halifax	Montreal, Que.	Kenneth G. Rea.
Royal Bank of Halifax	Halifax, N.S.	Kenneth G. Rea.
Molsons Bank	Revelstoke, B.C.	Byers & Anglin.
Royal Bank	Saskatoon	Kenneth G. Rea.
Royal Bank	Edmonton	Kenneth G. Rea.

THE DENNIS WIRE & IRON WORKS CO., LIMITED

HEAD OFFICE AND WORKS:
LONDON, ONT

PRODUCTS. The famous D-I, STANDARD ALL-STEEL LOCKERS, CABINETS, BINS AND SHELVING, ORNAMENTAL IRON AND BRONZE.

METAL LOCKERS. The advantages of Metal Lockers for factories, stores, clubs, gymnasiums, hotels, schools and other institutions are now universally recognized.

Steel Lockers provide security against petty theft, minimize risk from fire, promote order, tidiness and system, encourage cleanliness and hygienic conditions. They economize space and effect a saving of time, money and their contents.

D-I, Standard Lockers are made from high-grade steel sheets. Cold rolled, close annealed, dead flat, patent levelled. The partitions and backs are solid steel sheets. Doors are either sheet steel perforated or expanded metal.

Expanded metal or wire partitions are not recommended. Separating the clothing in adjoining lockers by Solid Steel Partitions is more sanitary and preferable in every way. The solid steel sheets make a more rigid and more durable construction.

In a locker the door is a most important feature. Each door in all our lockers has three hinges and three-way locking device, so that the door is secured at six points. Doors are framed with steel angles and have reinforcing plates at top and bottom adding to the appearance of the door and preventing it from "getting out of square."

The unit system is employed in the construction of D-I Standard Lockers. Each section is accurately made and punched to templates. When shipped knocked down, they can be assembled without any difficulty whatever and at minimum expense. It is a simple matter to re-arrange one of our locker installations should occasion arise.

Our locker legs are 6 inches in height and are adjustable, so that uneven floors can be provided for.

FACILITIES. For years we have been the largest manufacturers of Metal Lockers and Steel Shelving in Canada. We have made a close, careful, and ceaseless study of their varied features of construction and design, and have gathered together a force of expert workmen, skilled in this branch of sheet metal working; our equipment is modern and efficient, specially installed, and used for one purpose—the manufacture of high-class Steel Lockers and Shelving.

PORTFOLIO. Ask for our portfolio of Locker and Shelving Illustrations, etc., entitled "SECURITY."

THE ABOVE ILLUSTRATION IS OF OUR STYLE D 35 STEEL LOCKER

Note smooth effect of front. Reinforcing plates, angle steel frames, etc., are all on the *inside* of the door, presenting a plain, smooth surface, capable of receiving a superior finish. Doors in this type are made of special polished "steel furniture" stock

STEEL SHELVING:

We make Steel Shelving and Bins to suit any requirements. Steel Shelving is fireproof and effects great economy in space. Built on the unit system, sections can be added as requirements expand

ILLUSTRATING OUR METAL CABINETS, STYLE D 20

We design and make Metal Cabinets suitable for all requirements. They are used in factories, stock rooms, wholesale and retail storerooms, railroad stores, etc.

CONTINUED ON NEXT PAGE

THE DENNIS WIRE & IRON WORKS CO., LIMITED

HEAD OFFICE AND WORKS: LONDON, ONT.
TORONTO OFFICE: 36 LOMBARD ST.

AGENCIES

VANCOUVER W. H. O'NEIL & CO. OTTAWA STANDARD SUPPLIES, LIMITED. HALIFAX N.S. FRANK A. GILLIS & CO.
CALGARY, ALTA. CANADIAN EQUIPMENT & SUPPLY CO.

PRODUCTS

Manufacturers of ORNAMENTAL IRON, BRONZE AND WIRE WORK of every description, including: RAILINGS, GRILLES AND METAL WICKETS for Banks, Offices, etc., IRON AND BRONZE GATES, BRONZE TABLETS, COMPLETE IRON STAIRS, ELEVATOR ENCLOSURES, MARQUISES, BALCONIES, CHURCH METAL WORK, FIRE ESCAPES, CRESTINGS, WIRE WINDOW GUARDS AND SCREENS, METAL STORE FRONTS, STEEL WINDOW SASH, JAIL CELLS, STABLE FITTINGS, and the Famous D. L. STANDARD STEEL LOCKERS AND SHELVING.

ILLUSTRATIONS

The accompanying illustrations will convey an idea of the artistic qualities of our work.

BANK AND OFFICE FITTINGS.

In Fig. 2 may be seen one of our many artistic designs of Ornamental Bank and Office Counter Railings. We furnished this pattern for the Bank of Toronto at Petrolea, Ontario. Fig. 3 shows an ornamental cast iron railing, installed by us in the Jacob A. Jacobs bldg., Montreal. (Messrs. Mitchell & Creighton of Montreal were the architects.)

This railing is of handsome appearance, finished in a black lacquer, and surmounted by a bronze hand rail. The rest of the stair railings in this building are of the same design, and were furnished by us.

QUALITY OF OUR PRODUCTS.

It has always been our policy to produce only goods of sterling quality. From the selection of material to the last finishing touch, each piece of work receives the painstaking attention which only skilful craftsmen know how to bestow. Our products can be found in every part of Canada, and, if you desire, we will furnish you with lists of our customers.

SPECIAL DETAILS AND DESIGNS.

We will furnish full information as to sizes and weights of materials, with preliminary sketches, designs, and full-sized details of ornamental iron work, if desired. Particular attention will be given to the careful execution of your drawings, endeavouring to carry out the work in the spirit, as well as to the letter, of the design.

FACILITIES.

Our large, modern factory, devoted exclusively to the production of Ornamental Iron Bronze and Wire Work, and equipped with every facility for the manufacture of work of the best grade, and a well-organized staff of skilled designers and craftsmen, enables us to promptly execute any work entrusted to us, no matter how large or small the contract may be. Shipments are made in the shortest possible time after the receipt of the order, to any part of the country.

Our Eagle Lectern, in solid brass, is a stock design, No. 10 E. This, with many other items of church ornament in metal, is shown in the section of our "Portfolio of Architectural Details" relating to churches.

OUR SERVICES.

We issue a large "PORTFOLIO OF ARCHITECTURAL DETAILS," containing many photographs of our work, with sketches and working drawings of our various designs and details.

While our "Portfolio of Architectural Details" shows many stock patterns, we are always ready to estimate on special designs in accordance with the drawings and specifications of the architect.

We will gladly place our engineering and designing staff at your disposal until a satisfactory solution of your problems in connection with Ornamental Metal Work has been obtained

CONTINUED ON NEXT PAGE

Fig.

Here is shown an application of our design No. 17 V, referred to on the opposite page. This pattern of Counter Railing can be wrought to advantage in any finish. It has a chaste appearance, combined with excellent qualities of service.

Fig. 3

The above is an illustration of the cast iron railing referred to under Fig. 1 on opposite page.

THE MANITOBA BRIDGE AND IRON WORKS, LIMITED

LOGAN AVE. WEST,

WINNIPEG, MANITOBA.

"MODERN METHOD" STAIRS.

We are the licensees for the manufacture of "MODERN METHOD" Stairs for Western Canada. They are the strongest and lightest stair made, being all steel construction, adaptable to any form of tread as per illustration. This form of stair is considered by Fire Underwriters safest and best where marble and slate treads are used, because treads are supported by steel plate underneath.

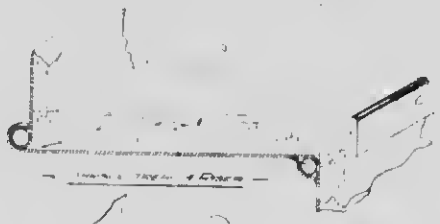
ILLUSTRATION No. 1. Chequer Steel Plate Tread.

No. 2. Chequer Steel Plate and Mason Tread.

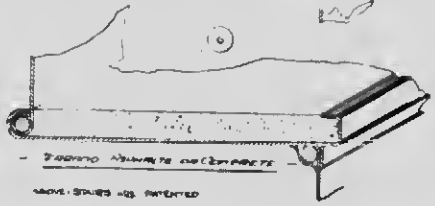
No. 3. Concrete Tread and "Lea" Safety Lead Strip.

No. 4. Slate or Marble Tread

No. 5. Marble Tread and Riser.



No. 6. Terrano Asphalt or Cement Treads.



CO-OPERATION We invite Architects and Engineers to inspect them.

CANADIAN ORNAMENTAL IRON CO.

OFFICE: 86 RIVER STREET. WORKS 147 SUMACH STREET.
TORONTO, ONT

MANAGER E. J. LEA

PRODUCTS — We are Designers and Workers in IRON, BRASS, BRONZE and CHASED BRONZE WORK

GRILLE FOR FRONT DOOR IN WROUGHT IRON
Wickson & Gregg, Architects

"MODERN METHOD" STAIRS AND STEEL STORE FRONTS. — We specialize on "Modern Method Stairs," details of which are shown further on; also Steel Store Fronts.

These stairs are installed in many of the modern buildings in Toronto, Ottawa, Winnipeg, Calgary, Edmonton, and other cities, and are specified by leading architects.

CONTINUED ON NEXT PAGE

CANADIAN ORNAMENTAL IRON CO.

TORONTO, ONT.

SAMPLES OF OUR BRONZE AND BRASS WORK

CONTINUED ON NEXT PAGE

CANADIAN ORNAMENTAL IRON CO.,

TORONTO, ONT.

"MODERN METHOD" STAIR- AND ELEVATOR ENCLOSURE.
WORLD BUILDING, TORONTO

CONTINUED ON NEXT PAGE

CANADIAN ORNAMENTAL IRON CO.,

TORONTO, ONT.

"MODERN METHOD" STAIRS.

"Modern Method" Stairs are manufactured by machinery especially designed, and, therefore, may be made and erected in less time than any other style of stairs. As time-savers in construction of important buildings, they are invaluable to architects and owners. They are the neatest, lightest and strongest stairs made.

"MODERN METHOD" STAIRS, MARBLE TREADS, INSTALLED IN THE NEW COURT HOUSE, EDMONTON

NOTE. We have installed "Modern Method" Stairs throughout the Government Building, Edmonton; also City Hall, Edmonton.

CONTINUED ON NEXT PAGE

CANADIAN ORNAMENTAL IRON CO.,

TORONTO, ONT.

ONE OF THE DOZEN SCHOOLS IN EDMONTON EQUIPPED WITH "MODERN METHOD" STAIRS

"MODERN METHOD" STAIRS.
TORONTO GENERAL TRUSTS BUILDING

"MODERN METHOD" STAIRS, 16 FT. WIDE, INSTALLED IN THE DUKE OF CONNAUGHT SCHOOL, TORONTO.
ONE OF THE FIFTY SCHOOLS IN TORONTO EQUIPPED WITH OUR STAIRS.

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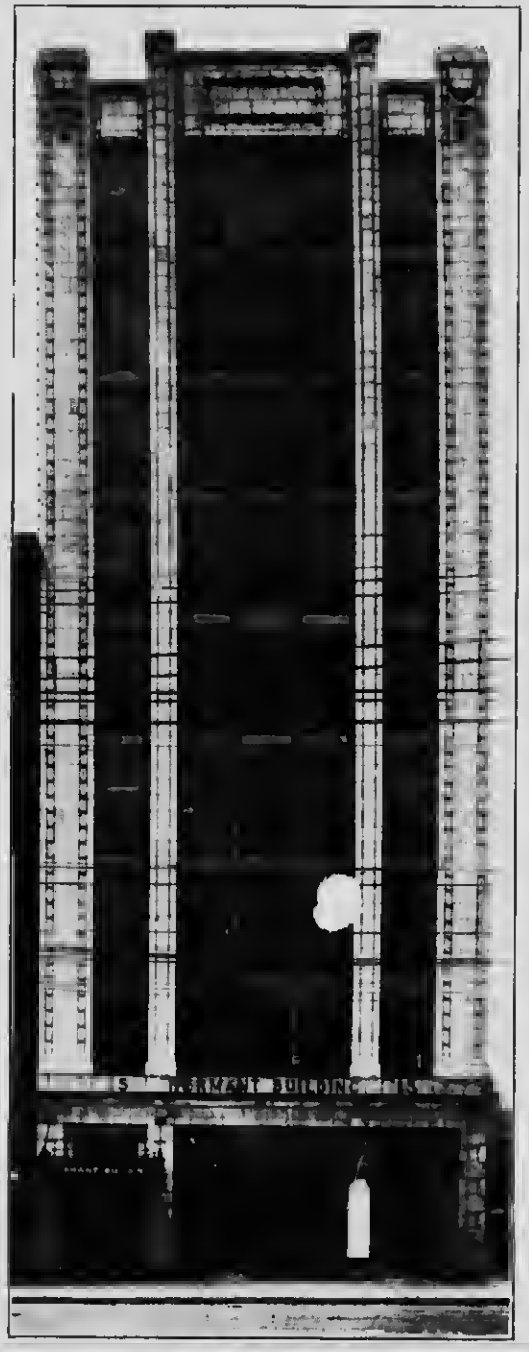
CANADIAN ORNAMENTAL IRON CO.,

TORONTO, ONT.



HERMANT BUILDING, TORONTO
Bond & Smith, Architects.

MASON & RISCH BUILDING, TORONTO
Bond & Smith, Architects.

STEEL FRONTS ERECTED BY US.

CONTINUED ON NEXT PAGE

CANADIAN ORNAMENTAL IRON CO.,

TORONTO, ONT.

ELEVATOR ENCLOSURE.
A. E. REA BUILDING, OTTAWA. ROSS & McDONALD, Architects

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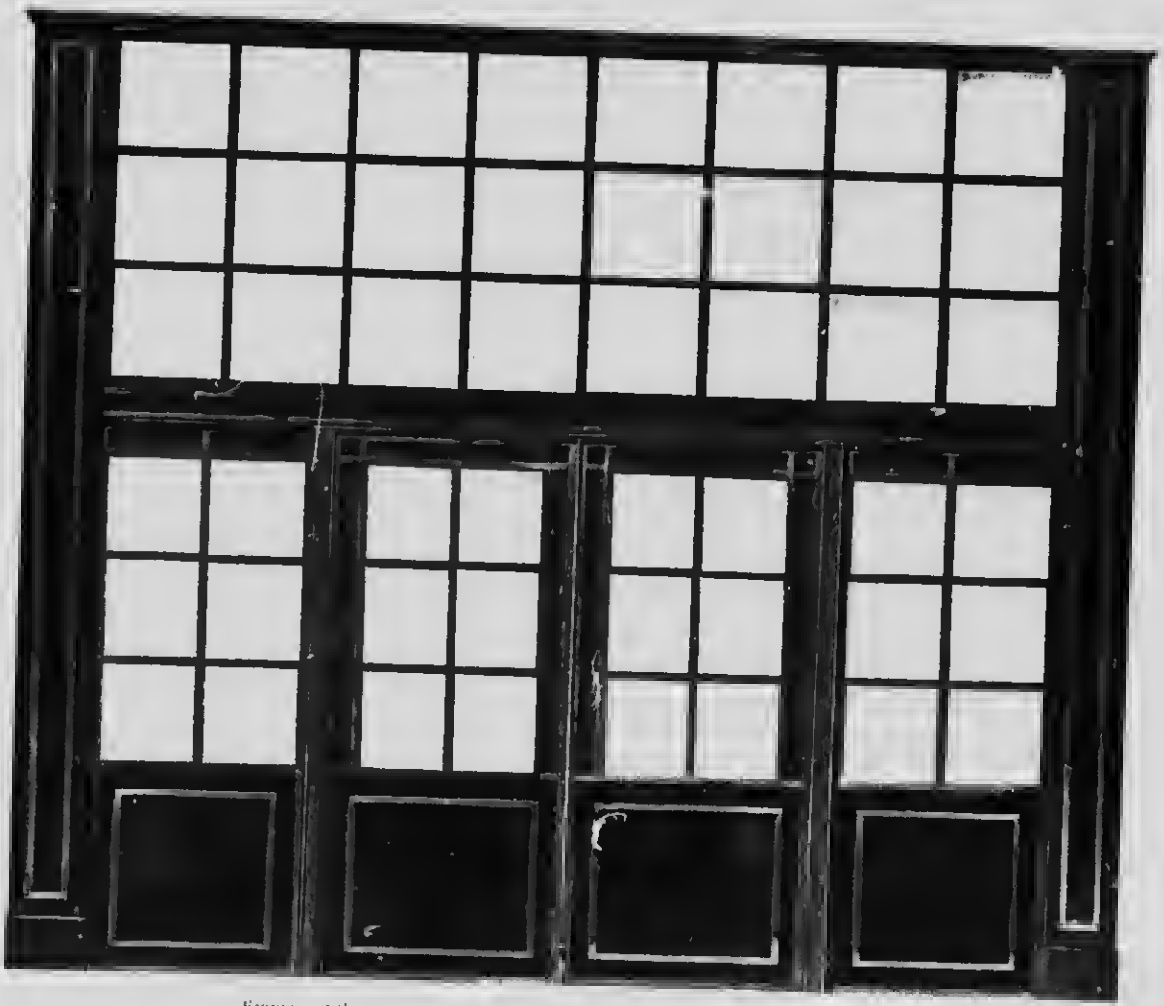
CANADIAN ORNAMENTAL IRON CO.

TORONTO, ONT.



FIREPROOF STAIRS AND ENCLOSURE MADE OF NO. 10 GAUGE SHEET STEEL

INFORMATION. Details and prices furnished on application.

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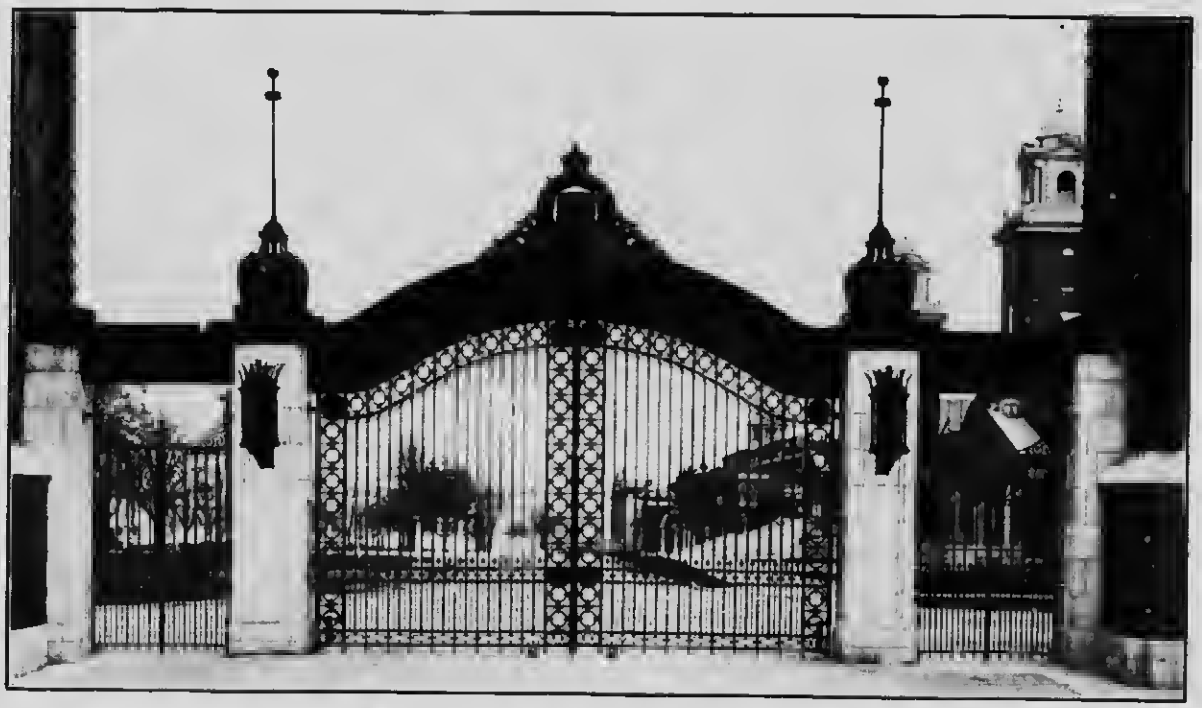
CANADIAN ORNAMENTAL IRON CO.,

TORONTO, ONT.

GATES OF THE CANADIAN NATIONAL EXHIBITION, TORONTO, ONT.



GATES OF THE CANADIAN NATIONAL EXHIBITION, TORONTO, ONT

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CANADIAN ORNAMENTAL IRON CO.

TORONTO, ONT.

RESIDENCE, GERRARD B. STRATHY, TORONTO.
Eustace G. Bird, Architect

SPECIAL DESIGNS. Iron Fencing and Gates furnished.

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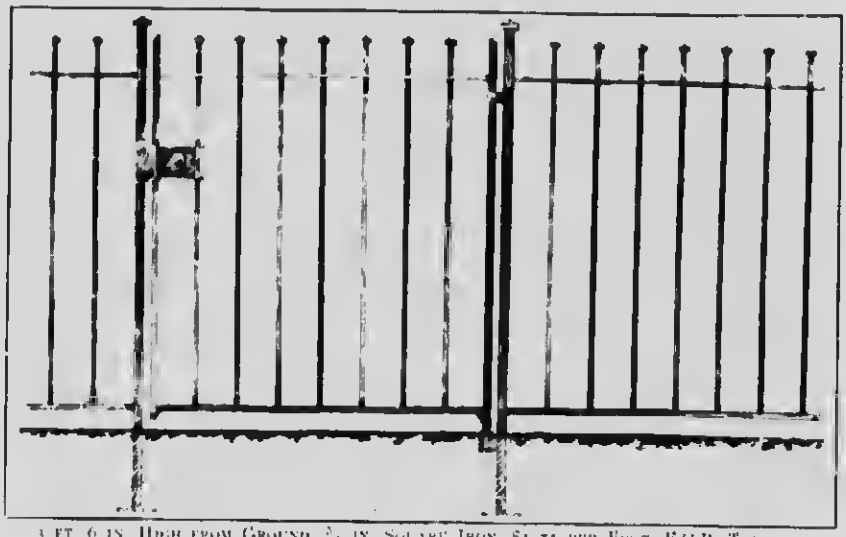
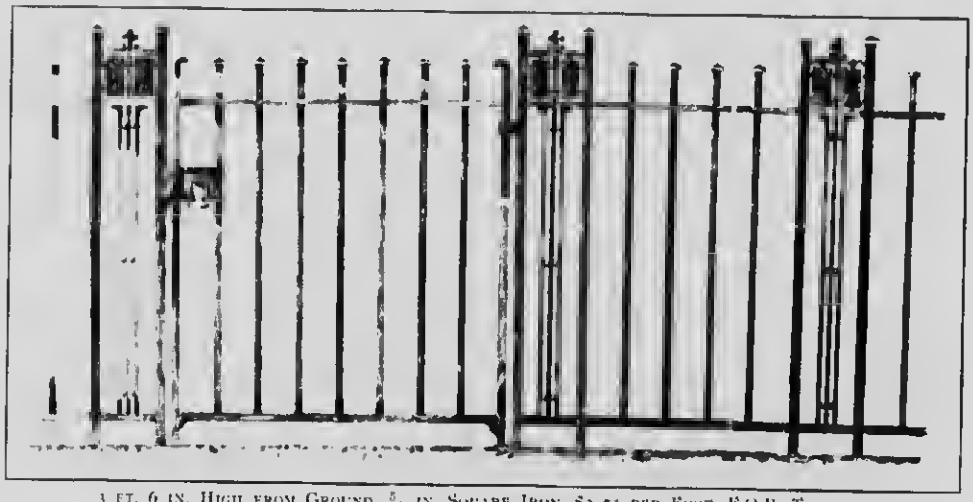
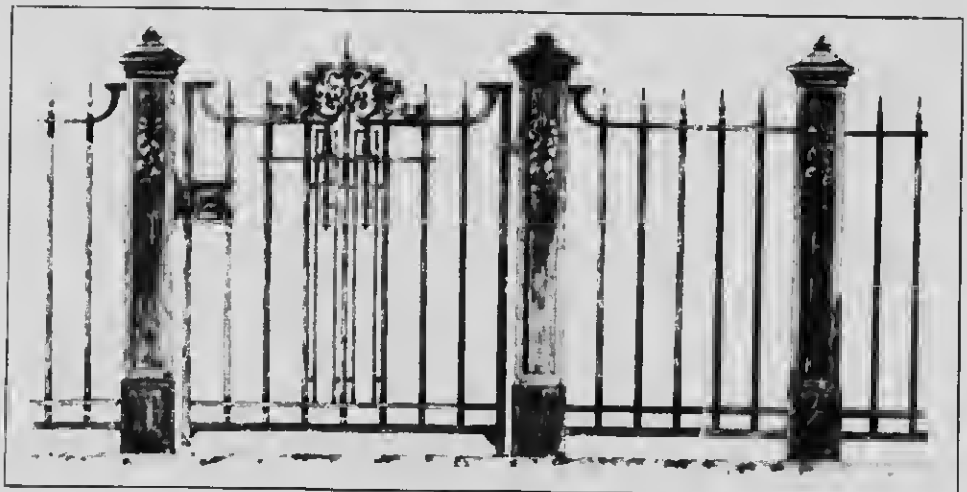
WROUGHT IRON FENCING WITH FORGED ROUND PICKET HEADS



3 FT. 6 IN. HIGH FROM GROUND, $\frac{5}{8}$ IN. SQUARE IRON, $1.75 PER FOOT, F.O.B. TORONTO
3 " " " " " $\frac{1}{2}$ " " " " 1.50 " " " " "



3 FT. 6 IN. HIGH FROM GROUND $\frac{5}{8}$ IN. SQUARE IRON, $2.75 PER FOOT, F.O.B. TORONTO
3 " " " " " $\frac{1}{2}$ " " " " 2.50 " " " " "



3 FT. 6 IN. HIGH FROM GROUND, $\frac{5}{8}$ IN. SQUARE IRON, $3.00 PER FOOT, F.O.B. TORONTO.—GATE POSTS, $8.50 EACH

DOMINION ARCHITECTURAL IRONWORKS, LIMITED

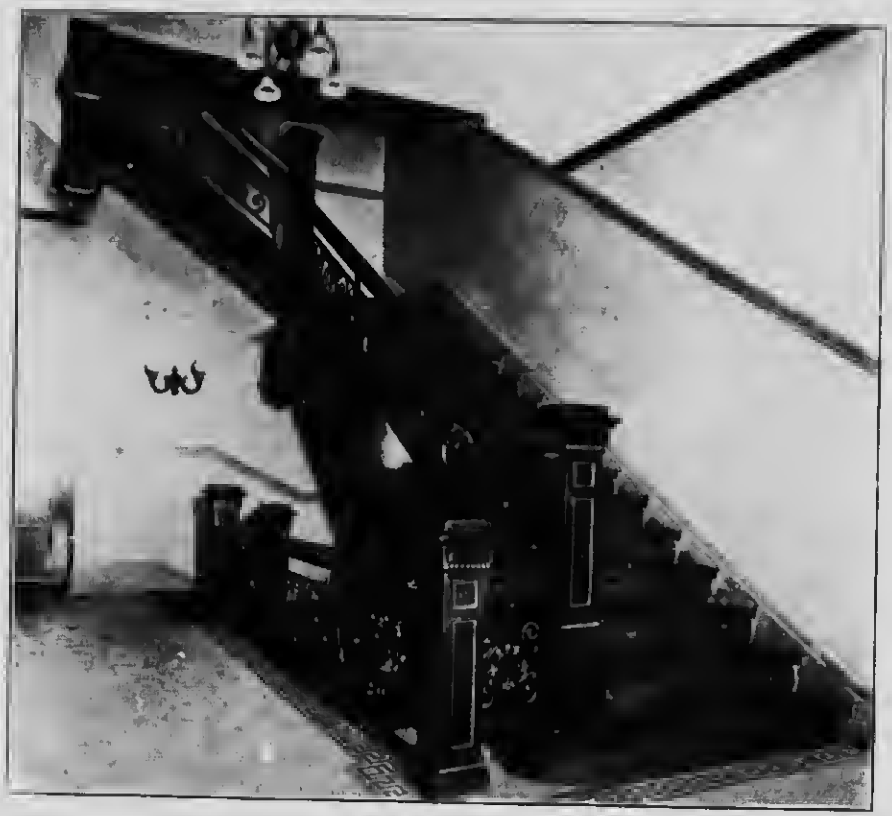
WORKS AND OFFICES: 63 & 65 DALHOUSIE STREET,

MONTREAL.

PRODUCTS. We manufacture and install "MODERN METHOD" STAIRS, FIRE ESCAPES, ELEVATOR ENCLOSURES, GATES, RAILINGS, GRILLES, MARQUISES, METAL LOCKERS, SIDEWALK AND VAULT LIGHTS, METAL SASH, CASEMENTS, STORE FRONTS, STRUCTURAL STEEL WORK. We are also general workers in Brass, Bronze and Ornamental Iron.

Modern Method Stairs are the strongest and lightest stair made, being of all-steel construction, adaptable to any form of tread, such as marble, terrazzo, concrete, etc.

For details regarding the construction of these stairs, see ad. of Canadian Ornamental Iron Co., and also Manitoba Bridge Co., Winnipeg. We are the licensees for the manufacture of "Modern Method" Stairs for Eastern Canada.



THE ABOVE CUT SHOWS A MODERN METHOD STAIR WITH MARBLE TREADS AND ENCLOSED STRINGERS, MAKING A VERY SATISFACTORY JOB

Owing to the absence of cast iron in the construction of these stairs, the delays unavoidable to pattern making and foundry work are eliminated.

This form of stair construction is considered by Fire Underwriters safest and best where marble and slate treads are used, because the treads are supported by a steel plate underneath.

REFERENCES. We give below a list of buildings with "Modern Method" Stairs installed by us:

"Herald" Building	Montreal.	Allan Munro Colour Co.'s Building	Montreal.
"Regent" Apartments	Montreal.	No. 25 Fire Station	Montreal
"Marbridge" Apartments	Montreal.	Canadian Fairbanks-Morse Co.'s New Building	Montreal
"Claridge" Apartments	Montreal.	Canadian Vicker's New Building	Montreal.
"Elgin" Apartments	Montreal.	"Limoilou" School	Limoilou, P.Q.
Canada Sugar Refining Co.'s New Building	Montreal.	Quebec Harbour Commissioners' Office Building	Quebec, P.Q.
Northern Electric and Manufacturing Co.'s New Building	Montreal.	Apartment House	Ottawa.

JOHN WATSON & SON OF MONTREAL, LIMITED

ARCHITECTURAL IRON WORKS,

167 TO 181 WELLINGTON STREET AND 85 TO 101 ANN STREET,

MONTREAL, QUE.

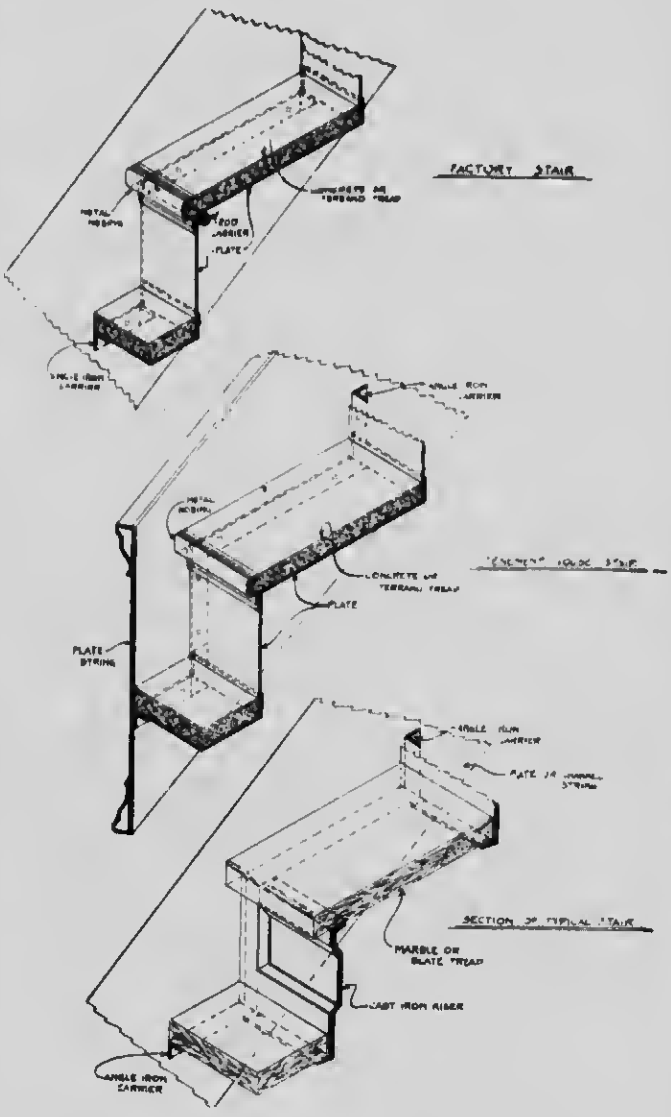
PRODUCTS. We manufacture and install all kinds of ORNAMENTAL IRON WORK for all kinds of buildings, including Stairs, Fire Escapes, Elevator Enclosures, Prism Lights, Marquises, etc.

STAIRS. We make a specialty of Stairs, and can make and erect a flight of stairs in two working days after measurements are taken.

FACILITIES. We have our own Foundry and Pattern Shop, and, consequently, have no delay in getting out work. Members of our staff have had extensive experience in the largest shops in New York, and know how to get work out on time, a point always kept specially in view. This experience is an important asset, and our patrons benefit by it.

LONG EXPERIENCE. John Watson & Son, Father, Son and Grandson, have had an experience in the Ornamental Iron business in Montreal for over forty years, a fact deserving consideration, especially as many concerns engaged in Ornamental Iron Work have come and gone in the meantime, often leaving loss and disappointment behind them.

We are getting a large share of the extensive buildings being erected in Montreal and Ottawa to equip, a fact which, we think, speaks not only for excellent workmanship, but also promptness in delivery.



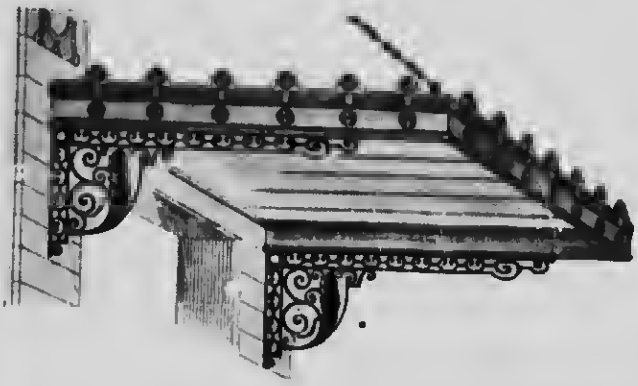
RECENT CONTRACTS.

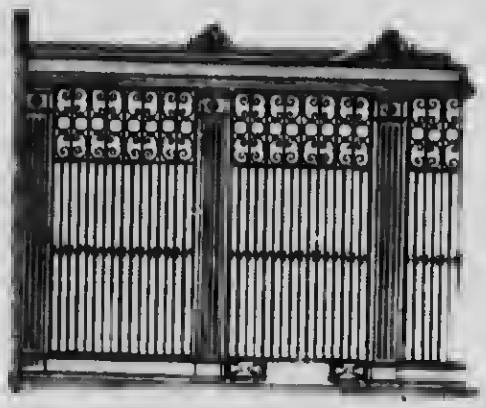
Transportation Building, Montreal.
Dominion Express Building, Montreal.
Major Building, Montreal.
Sommer Building, Montreal.
Read Building, Montreal.
Four Y.M.C.A. Buildings, Montreal.
New Customs Examining Warehouse, Montreal.
Rideau Hall, Ottawa.
Booth Building, Ottawa.
Bank Note Building, Ottawa.
Bell Telephone, Ottawa.
Imperial Wire and Cable Building, Montreal.
Shaughnessy Building, Montreal.
Frontenac Breweries, Montreal.
Postal Station "C," Montreal.
Central Union Station, Ottawa.
Bell Telephone Buildings, Toronto.
Parliament Buildings, Regina.
Mappen & Webb, Montreal.
Merling Refuge, Montreal.
High School, Montreal.
Goodwins Store Building, Montreal.

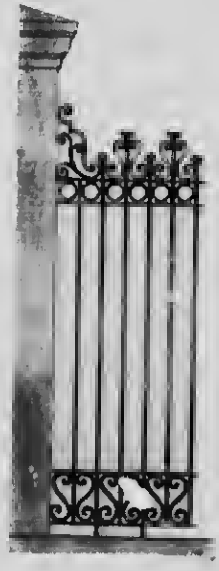
THE DOMINION ORNAMENTAL IRON CO., LIMITED

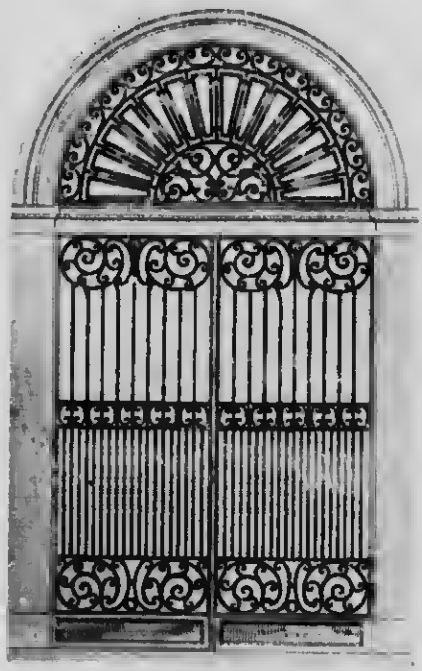
OFFICE AND WORKS: 1195 QUEEN STREET EAST,
TORONTO, ONT.

PRODUCTS. We are Manufacturers of Stairs in Wrought and Cast Iron, Fire Escapes, Elevator Enclosures, Marquises and Canopies, Bank Counter Screens, Fences and Gates, Balconies, Window Grilles, Lamps and Brackets, Gratings, Light Structural Iron Work, Iron Doors, Wire Work, Hammered Leaf Work, Fire Irons, Hoods, Baskets, Fenders, Andirons, etc., and Ornamental Iron, Brass and Bronze Work of every description.









DESIGNS AND ESTIMATES. We shall be pleased at any time to furnish estimates on architects' drawings and to submit special designs upon request. Correspondence solicited.

ESTEY BROS. CO.

Winnipeg Representatives
N. J. Dineen & Co., Ltd

Toronto Representatives
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Office
2-4 St. Cecile Street

Canadian Works
St. James, Cathedral, St. Cecile streets

ORNAMENTAL BRONZE AND IRONWORK.

PRODUCTS — SPECIALISTS IN STRICTLY HIGH-CLASS BRONZE WORK. Banking Screens, Entrance Doors, Grilles, Railings, Lamp Standards, Tablets, Elevator Enclosures, Stairs, Etc., in Bronze, Iron or Electro-Plated.

Royal Trust Bldg., Montreal. Bronze Counter Screen. McKim, Mead & White, Architects.

Fort Garry Hotel, Winnipeg. Bronze Balcony Rail. Ross & McDonald, Architects.

SPECIAL DESIGNS. Our Designing Department is at the service of architects, with whom it is our aim to co-operate at all times.

THE CANADIAN CUTLER MAIL CHUTE COMPANY, LIMITED

GENERAL OFFICE AND WORKS
MONTREAL, CANADA

PRODUCTS.

CUTLER MAILING EQUIPMENT

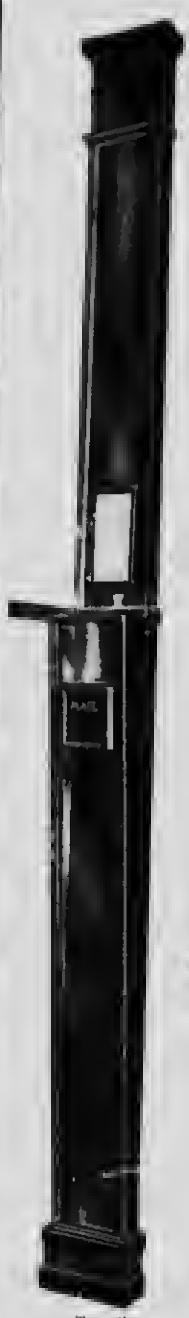
We are the sole Manufacturers and Dealers in Canada of Models F and C, the latest improved Mail Chutes. Their interiors are under Government lock and are easily and quickly accessible, as the front is removable in convenient sections. These fronts are set inside of the Chute Channel, their edges being covered by a protecting flange, which effectively prevents malicious or mischievous persons from pulling or prying them forward.

The Chute is very simple and substantial in design and construction.

In appearance these Chutes are neat and of an architectural character appreciated and much commended by architects.

THE CUTLER MAIL CHUTE EQUIPMENT is a necessity in any modern building of the office, apartment, or hotel variety, because in such buildings the convenient and certain despatch of mail is a matter of first importance, and the Cutler Mail Chutes afford the best means of securing this result.

THE CUTLER MAIL CHUTE is Patented and Authorized, and is in strict accordance with Post Office requirements.



TYPE F
OPEN

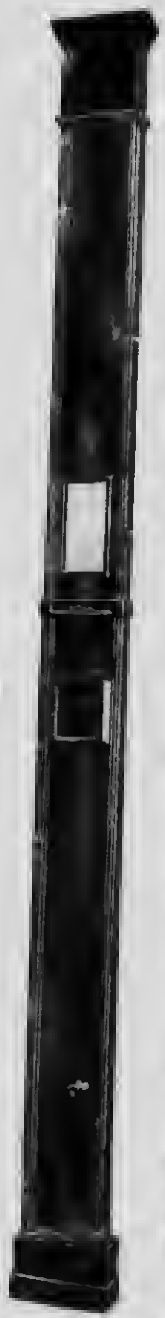
No. 1490 A Mail Box

No. 1495 Mail Box

We have installed Cutler Mailing Equipments in all the leading office buildings, apartment houses, and hotels throughout Canada. Upon request, we shall be pleased to submit special designs in harmony with any style of building.

Full information as to cost of installation will be furnished upon application to the Company's General Offices, Montreal, or any of its numerous Agents located in the principal cities throughout Canada.

Write for our latest booklet "B."



TYPE F
CLOSED

KAWNEER MANUFACTURING COMPANY, LIMITED

METAL STORE FRONTS AND ARCHITECTURAL MOULDINGS.

TORONTO, CAN

AGENTS

KAWNEER MFG. CO., LTD
1017 NEW BIRKS BLDG., MONTREAL, QUE.
CANADIAN WESTERN BLDRS. SUPPLIES, LTD.,
301 DOMINION BANK BLDG., SASKATOON, SASK
SASKATCHEWAN GLASS AND SUPPLY CO., LTD.,
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H. J. MACKENZIE,
194 QUEEN ST., OTTAWA, ONT.

BRAID & MCCURDY,
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WESTERN SUPPLY AND EQUIPMENT CO.,
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WESTERN SUPPLY AND EQUIPMENT CO.,
CALGARY, ALTA
AMES BROS.,
WELTON BLOCK, VANCOUVER, B.C
R. ANGUS,
1105 WHARF ST., VICTORIA, B.C

PRODUCTS. Manufacturers of KAWNEER STORE FRONTS in solid copper, brass, bronze and aluminum; KAWNEER ARCHITECTURAL METAL MOULDINGS in cold-rolled and drawn copper, brass, bronze, aluminum and steel.

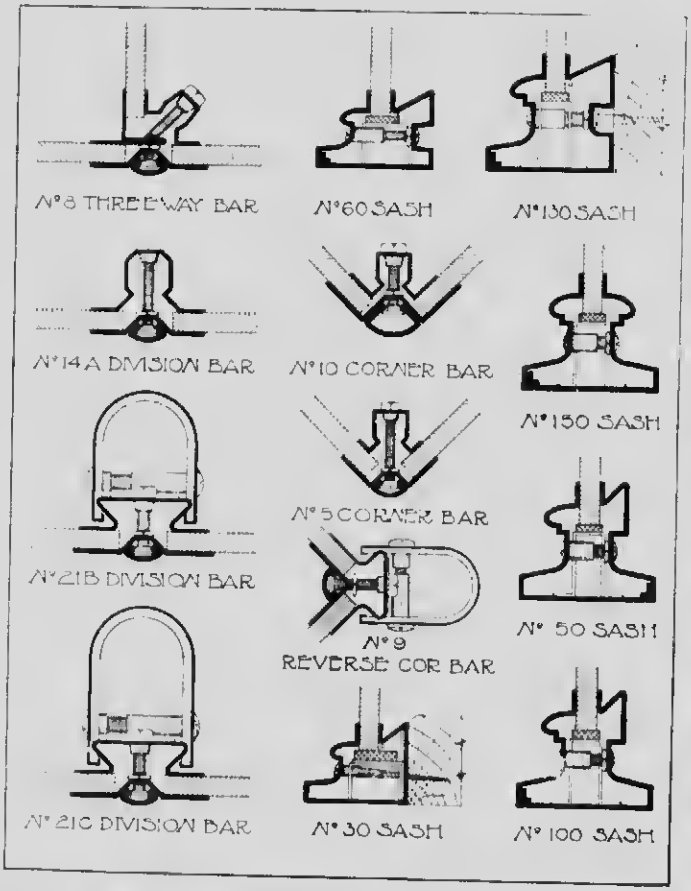
Kawneer STORE FRONTS

CO-OPERATION. In addition, many architectural metal mouldings, as well as special mouldings made to the particular specification of the architect, can be furnished promptly. An engineering department is maintained to give you complete information, accompanied by drawings to architects wherever special usages of construction are required.

DESCRIPTION. KAWNEER NO. 30 METAL SASH, shown in the accompanying details, provide for the regulation of show window ventilation and drainage. By moving the V-shaped slide every vent-hole in the gutter is simultaneously opened or closed. The slide is operated from the inside of the show window, and is made, as are all other parts, of solid copper, brass, bronze, or aluminum, as desired. Metal Sash Nos. 30, 60 and 130 are equipped with movable slide.

"KAWNEER" STORE FRONTS. "KAWNEER" is a narrow, inconspicuous, all-metal construction, designed to give the greatest possible space for window display. The glass is held rigidly with a spring cushion grip, which insures the safest possible setting for the glass; one dollar provides for the expansion and contraction, vibration from wind, and any inequalities in the thickness. All glass is set from the outside.

VENTILATION AND DRAINAGE. Metal Sash No. 30, No. 60, No. 100 and No. 130 are provided with a ventilation system that allows the entrance of a full current of air. This air circulates along the inner surface of the glass, absorbs the moisture and prevents the formation of frost or sweat. Drainage is also provided for, and in summer Sash Nos. 30, 60 and 130 can be made absolutely dust-tight by the slide built in the gutter.



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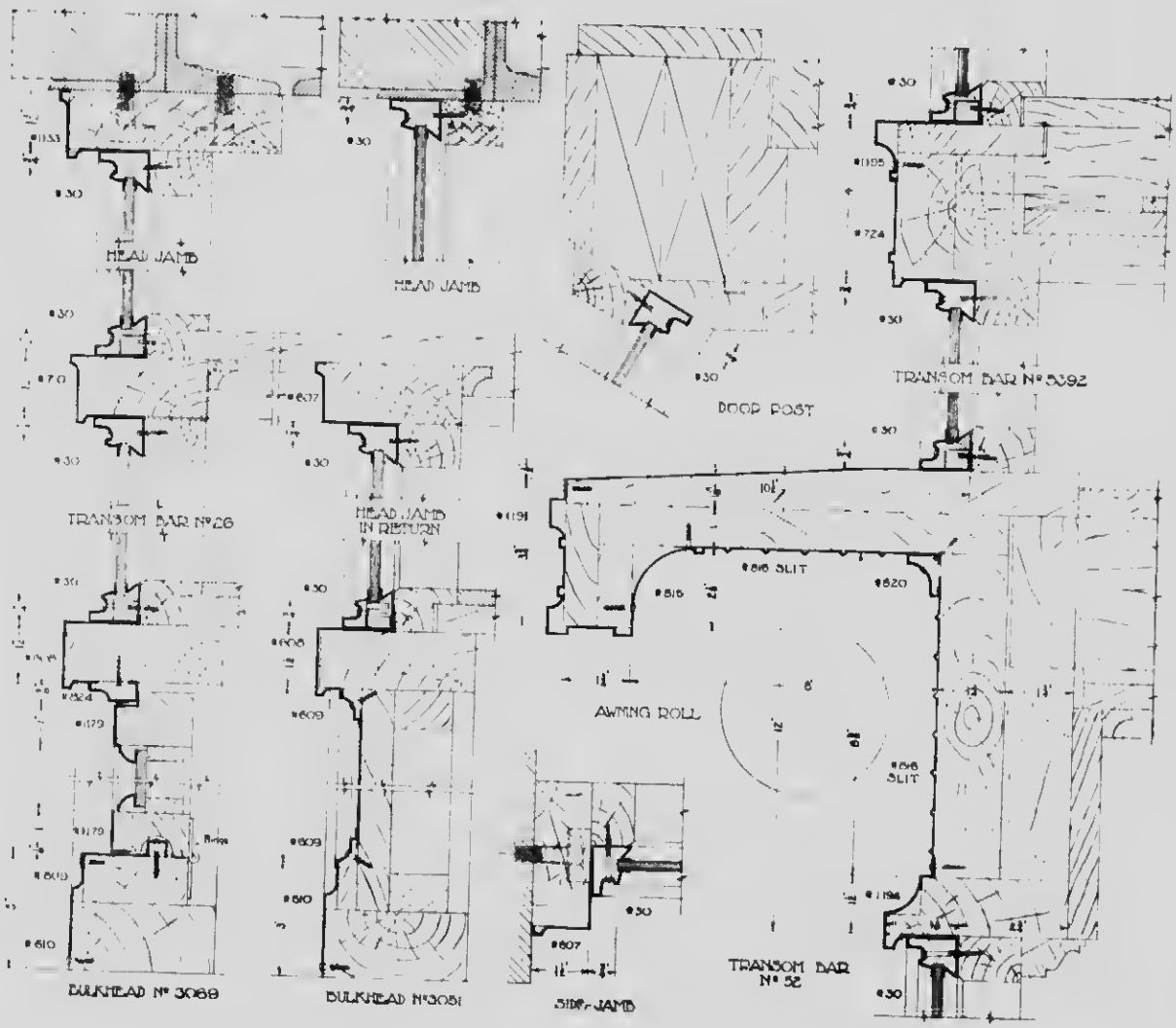
SETTING. All sash may be set directly against a brick, iron, concrete, marble or wood jamb or sill. A backing, either of wood or an angle iron 1¼" high, is used in which to fasten the screw of Sash Nos. 30 and 130. All other sash are self-supporting and require no backing whatever.

ELEVATED DISPLAYS. Sash No. 50 is especially designed for displays above the first storey. Glass is set in this sash from the inside.

MATERIAL. All "KAWNEER" metal is either copper, brass, bronze or aluminum, pure lake copper being used for [illegible] oxidized or antique copper finishes, as well as for the polished copper finish. This gives absolute rebate from rot, rust or warp, and obviates any necessity of painting the store front.

FINISHES. "KAWNEER" material is manufactured in the following finishes: Polished copper, brass, bronze and aluminum, gun metal or black oxidized copper, spotted oxidized copper, statuary copper, dull brass, antique brass, antique or old copper, and brushed bronze.

DETAILS OF KAWNEER STORE FRONTS, QUARTER FULL SIZE.



EASYSET SYSTEM
ALL METAL
STORE FRONT CONSTRUCTION

EASYSET STORE FRONT CONSTRUCTION CO.

"EASYSET"

THE STRONGEST AND MOST ATTRACTIVE ALL-METAL STORE FRONT CONSTRUCTION ON THE MARKET.

EASYSET SYSTEM
ALL METAL
STORE FRONT CONSTRUCTION

TORONTO, CANADA.

H. J. ST. CLAIR CO. LTD., MANUFACTURERS OF "EASYSET" FOR DOMINION OF CANADA, TORONTO, ONT.

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SASKATOON, SASK.
LETHBRIDGE, ALTA.
PORT ARTHUR, ONT.

ALL DETAILS SHOWN HERE ARE HALF SIZE

CORNER BAR.

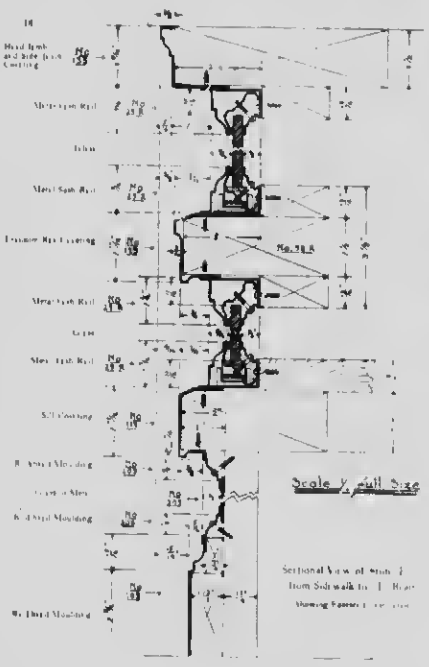
No. 4A

No. 4 B

NO. 4-C

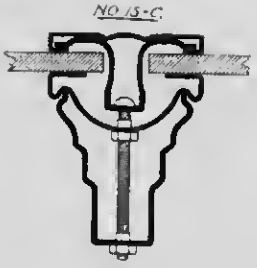
No. 4 A CORNER BAR. Note how the reinforcement fits inside the outer covering thus, when the bar is installed and the nut is tightened, it draws the outside of the bar to the glass, instead of forcing it away, as is the case with most bars. The glass is gripped some distance from the edge, thus preventing breakage from "pinching" a small piece of wood fitted over the screw protects the edge of the glass. This bar is designed to take care of the variation in thickness of plate glass without bending or springing the metal.

No. 4 C, similar to 4 A, but larger; also reinforced by steel. This bar we highly recommend.



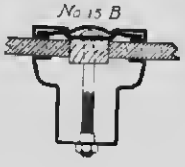
NO. 15 AR

NO. 15-C



DIVISION BAR.

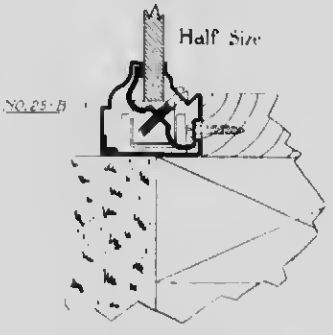
No. 15 B



No. 15 A.R We show half size detail of our Division Bar. As with the Corner Bar, the reinforcement fits inside the outer covering, and the same principle is employed that of drawing the outside section of the bar to the glass. The edges of the glass are also left free, preventing "pinching." This bar is also arranged to provide for variation in thickness of glass. The end of this bar rests on the edge of the metal sash rail, and the inner part is anchored to the floor. Small steel anchors, with screws complete, are furnished for this purpose. This shows the steel reinforcement, which is not necessary under 1/8" glass.

Half Size

NO. 25-B



SASH RAILS.

REVERSE CORNER BAR
NO. 35-A

No. 25 A. We show above a half size detail of our Metal Sash Rail, with ventilating drainage system. Glass is set from outside. Tension obtained from inside screws. No outside screws to mar the face of the sash or to work loose and release the tension. These inside screws should be tightened evenly.

No. 25 B. Sash Rail. Is similar to 25 A in appearance, but is so constructed as to be readily applied to stone, marble, brick or steel. The setting block is of solid steel, mounted with leather. It is in two pieces and readily adjustable; it can be raised or lowered. This absolutely prevents the edge of the glass from coming in contact with metal. All caps which cover joints are then put in place. These caps, with the necessary screws, are shipped with each order. This rail is a frost-preventive when show windows are built air-tight, allowing only the air entering through the metal sash to ventilate. It has the drainage system also.

Made of heavy gauge COPPER, BRASS, ALUMINUM, or BRONZE.

Special finishes: Oxidized, Nickle, Gun Metal, Statuary Bronze, Satin Bronze, Satin Brass, and Sand Blast Copper. If interested, send for our catalogue, showing the great disappearing awning and our different mouldings.

We remodel the entire store front and show windows. Send for design book B, showing many of the latest and up-to-date Store Fronts.

THE HOBBS MANUFACTURING CO., LIMITED

MONTREAL. TORONTO. LONDON. WINNIPEG. VANCOUVER.

PRODUCTS

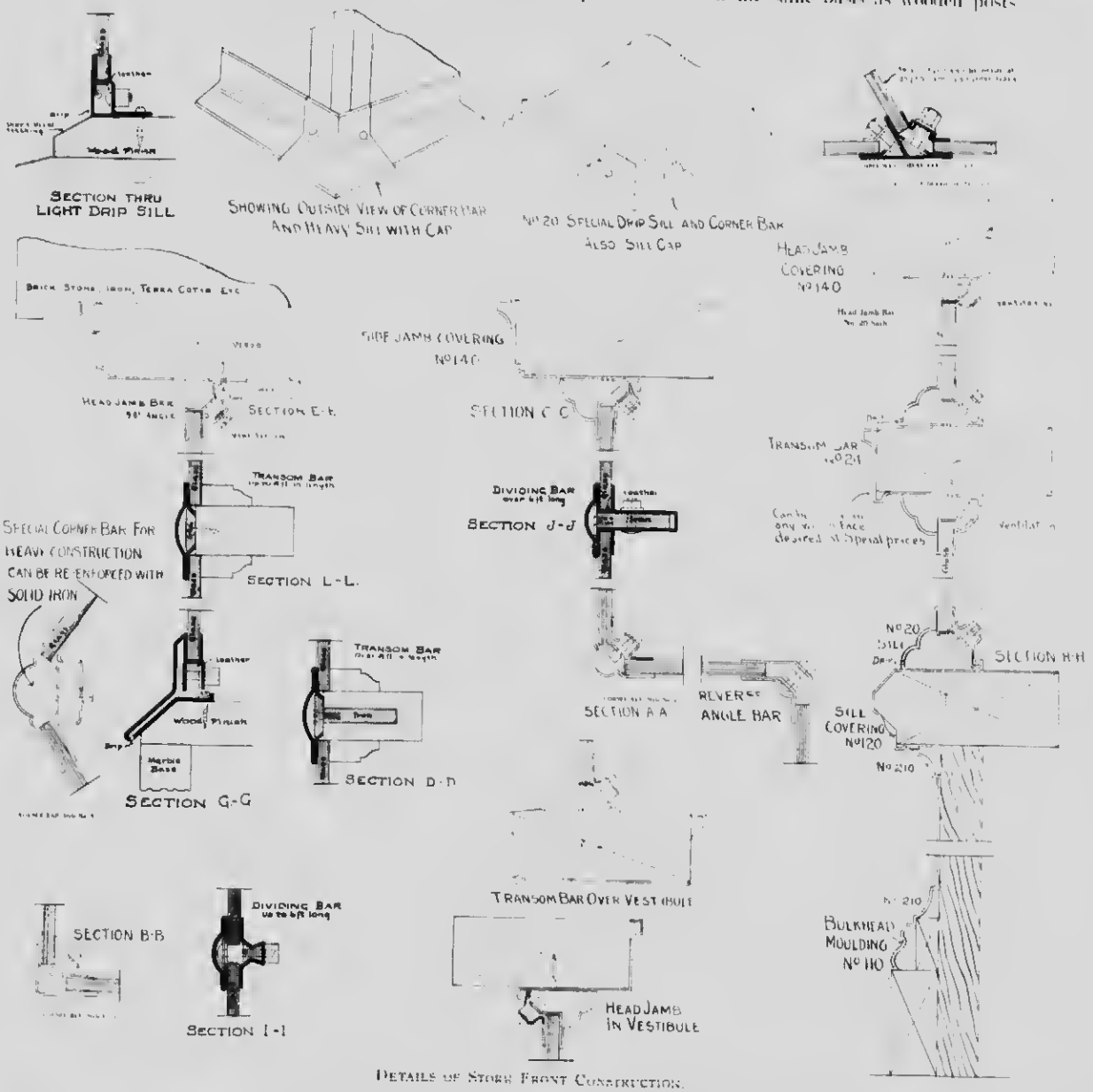
We are Canadian Agents for the THORNE HOLD-FAST PATENT METAL BAR SYSTEM OF STORE FRONT CONSTRUCTION.

DESCRIPTION.

The Thorne Hold-Fast Patent Metal Bar System not only does away with the unsightly wooden posts, but it provides a setting for the glass that eliminates breakage, which other metallic bars not manufactured on the Thorne scientific basis, will not do.

These bars are drawn from seamless tubes which give greater strength and provide a perfectly smooth and even rabbett for the Plate Glass, in this way eliminating the danger of the glass sliding over on the bolt as is the case with other metal constructions.

Plate Glass Insurance Companies accept these bars on the same basis as wooden posts



DETAILS OF STORE FRONT CONSTRUCTION.

INFORMATION. Full information and catalogues furnished upon request.

See our advertisement on page 137.

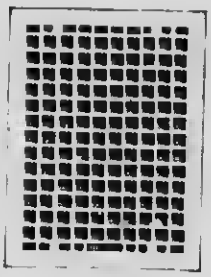
TUTTLE & BAILEY MFG. CO. OF CANADA, LTD.

BRIDGEBURG, ONTARIO.

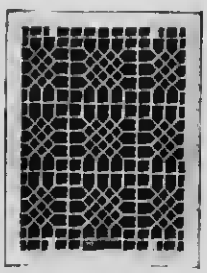
PRODUCTS. We Manufacture REGISTERS, VENTILATORS, GRILLES AND SCREENS OF STOCK OR SPECIAL DESIGN IN BRONZE, BRASS, CAST IRON, STEEL OR WIRE.

A few Stock Design Warm Air Registers are shown below.

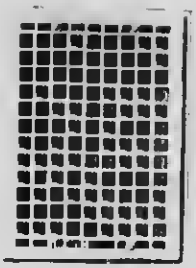
FLOOR REGISTERS



CAST IRON—PLAIN LATTICE



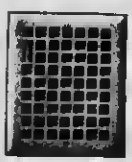
SEMI STEEL—INDIAN LATTICE
Also made in Plain Lattice.



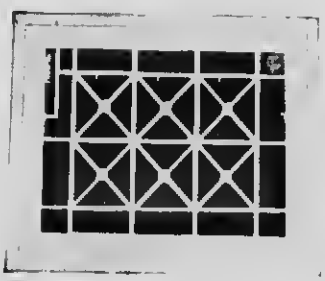
ALL STEEL—PLAIN LATTICE

BASE BOARD REGISTER.

SIDE WALL REGISTER.

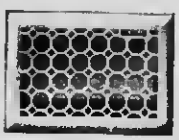


ALL STEEL—PLAIN LATTICE.
Our Side Wall Registers can be set either way



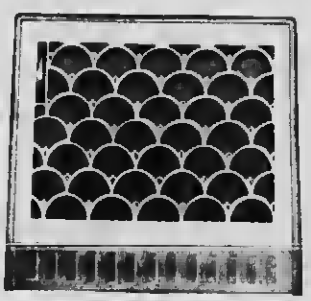
THE "QUICK SET"
Note large capacity [illegible] especially adapted to deep flues

SIDE WALL REGISTER.

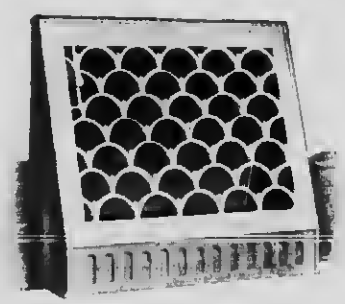


SEMI STEEL—MOORISH
Our Side Wall Registers can be set either way

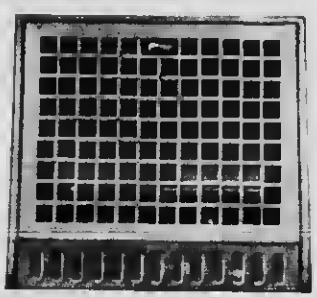
BASE BOARD REGISTERS



SEMI STEEL—SCALE DESIGN.



THE "DEFIANCE"—4" DEEP
(FOR 12" OR 14" PIPE)



ALL STEEL—PLAIN LATTICE DESIGN.

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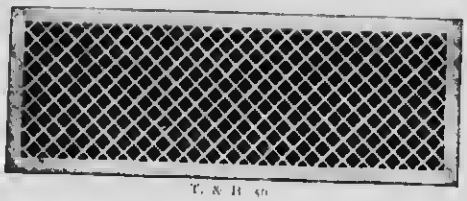
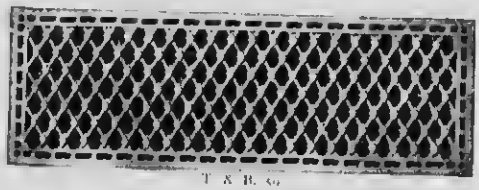
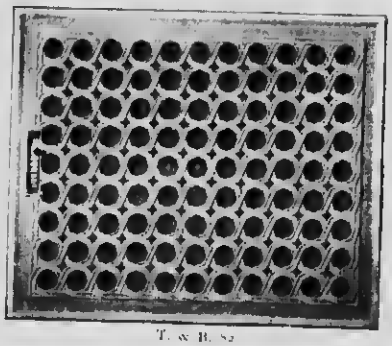


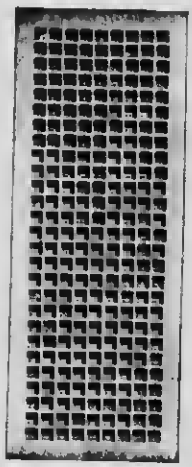
T. & B. 40



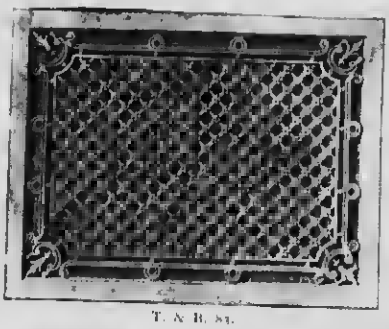
T. & B. 60



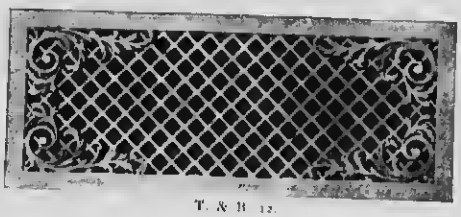
T. & B. 82



T. & B. 15



T. & B. 83



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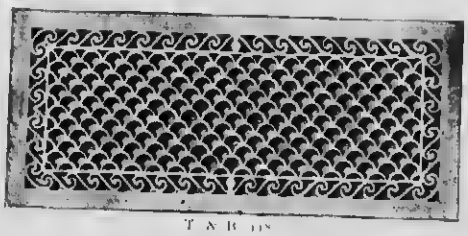
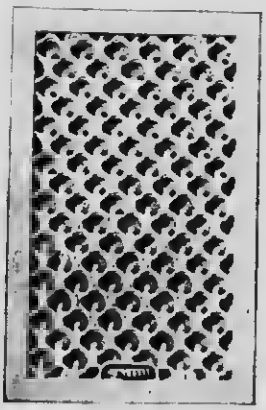


T. & B. 118



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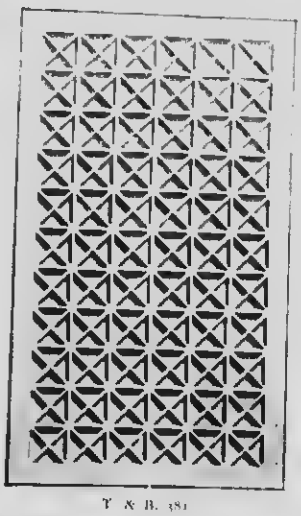

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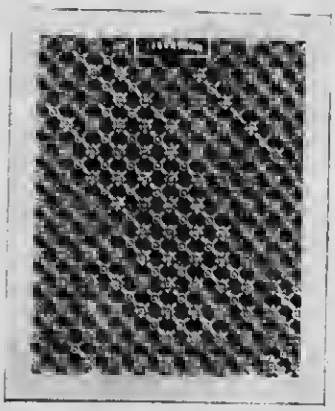

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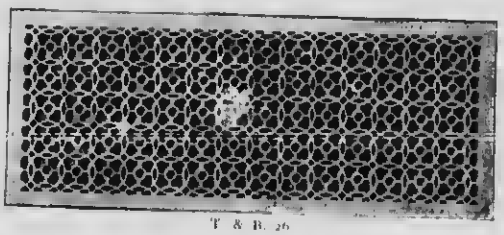

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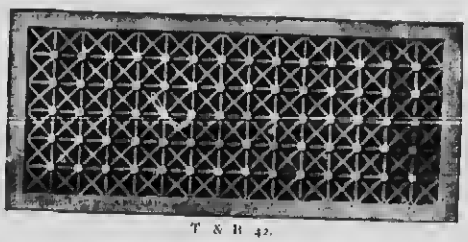


T. & B. 42

A Few Examples of Registers, Grilles and Screens Selected from Over 400 Special Designs
Made to order only, with an additional charge over the cost of stock goods.

CONTINUED ON NEXT PAGE

TUTTLE & BAILEY MFG. CO. OF CANADA, LTD.

SPECIAL DESIGNS. We make a specialty of designs suited to all orders of decoration, including Louis XIV., Louis XV., Colonial, Gothic, Moorish, Old English, Elizabethan, etc. A few of these, suitable for registers or grilles, are shown. We have over four hundred designs, covering all styles from the severely simple Plain Lattice to the most ornate Renaissance.

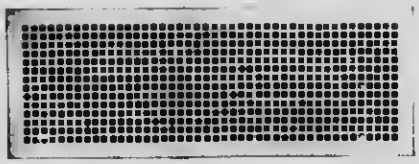
GRILLES AND SCREENS. Grilles and Screens of all sizes, to cover steam coils or for ventilation, are made in any finish, of cast iron, bronze, or brass metal, stamped steel, stamped brass, or woven wire.

CAST GRILLES. Bronze or Cast Iron Grilles have rims which vary in width according to size, the thickness of the rim being less than that of the fretwork. In the section shown below, A is the body size or size of opening to be covered; B is the extreme outside measure, and C the daylight opening. Unless otherwise stated, we assume that sizes given on orders are body sizes "A." Plain Lattice cast Grilles are made in almost all sizes (body sizes) of even inches. The mesh is $\frac{7}{8}$ of an inch square and the bars approximately $\frac{1}{4}$ of an inch. Various methods of fastening these Grilles and providing means of access to steam valves or for cleaning purposes are shown. Any of the special design Grilles can be similarly arranged. Estimates for providing hinges and catches or the special frames shown will be sent on application.

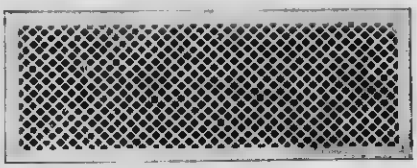
STEEL GRILLES. While not as substantial in appearance or as lasting as cast iron, Steel Grilles are cheaper and have their uses under certain conditions. They are made of sheet steel perforated in $\frac{7}{8}$" or $\frac{1}{2}$" mesh. The $\frac{7}{8}$" mesh is standard and is always supplied unless otherwise specified, but we also make $\frac{1}{2}$" mesh in both square and diagonal lattice.

STEEL GRILLES

STANDARD $\frac{7}{8}$ IN. SQUARE MESH



$\frac{1}{2}$ IN. SQUARE MESH



$\frac{1}{2}$ IN. DIAGONAL MESH

WIDTH IN DAYLIGHT OPENING "C"

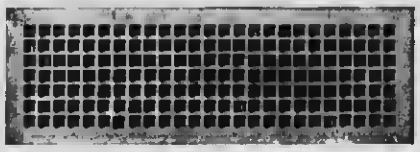
$\frac{7}{8}$ inch Square Mesh	Number of Squares	$\frac{1}{2}$ inch Square Mesh	Number of Squares	$\frac{1}{2}$ inch Diagonal Mesh	Number of Squares
1"	2	1"	1	"	2
2"	3	2"	4	"	3
3"	4	3"	5	"	4
4"	5	4"	8	4"	5
5"	6	5"	9	5"	6
6"	7	6"	10	6"	7
7"	8	7"	11	7"	8
8"	9	8"	12	8"	9
9"	10	9"	13	9"	10
10"	11	10"	14	10"	11
11"	12	11"	15	11"	12
12"	13			12"	13

Extreme size "B" as desired. Unless otherwise ordered, this will vary from 2 inch to 4 inch, all around, according to size of grille. Estimates for larger sizes furnished on application.

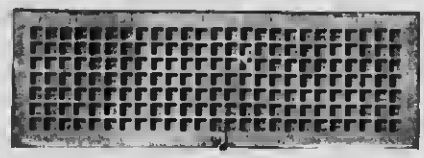
GAUGES

Showing thickness of gauge of sheet steel, U. S. Standard, from which steel grilles are punched.

CAST GRILLES.

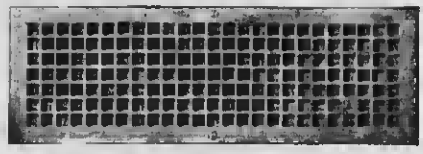


STANDARD $\frac{7}{8}$ IN. MESH GRILLE

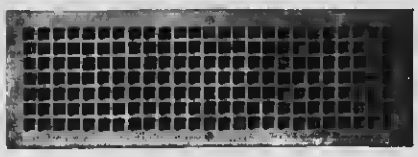


GRILLE HINGED TO WOODWORK

GRILLE HINGED TO ANGLE FRAME



GRILLE WITH DOOR IN FRETWORK



GRILLE ATTACHED TO IRON WALL FRAME

GRILLE HELD IN PLACE BY WOOD MOULDING

WARDEN KING, LIMITED

EXECUTIVE OFFICE AND WORKS:
BENNETT AVE., MAISONNEUVE,
MONTREAL, QUE.

TORONTO BRANCH
200 ADELAIDE STREET WEST.

SALES OFFICE AND CITY WAREHOUSE
151 CRAIG STREET WEST,
MONTREAL, QUE.

PRODUCTS. We manufacture and carry in stock a complete line of STABLE FITTINGS in Cast or Wrought Iron and Brass, OPEN STALLS, BOX STALLS, HAY RACKS, MANGERS, TROUGHS, STALL GUARDS, WHEEL GUARDS, STALL POSTS, NAME PLATES, CESSPOOLS, GUTTERS, YARD GRATES, BRACKETS, OAT CLEANERS, etc.

ESTIMATES. We will be pleased to submit estimates from drawings and specifications

CATALOGUE. Our 70-page Stable Fittings Catalogue for 1913, fully illustrated, and bound in blue and gold, has been sent to all architects throughout the Dominion. If it has not reached the office of any architect, we shall be pleased to mail a copy upon request.

See also our advertisement on pages 258 to 262.

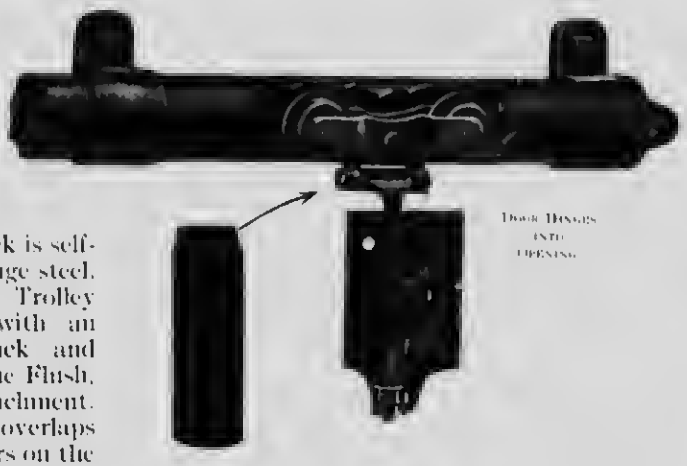
THE ALLITH MANUFACTURING CO., LIMITED

HAMILTON, ONT.

PRODUCTS. We are manufacturers of "RELIABLE" SLIDING DOOR FIXTURES for Fire, Parlour, Garage and Warehouse Doors, SLIDING STORE LADDERS, MERCHANDISE CARRIERS, etc.

ALLITH FLUSH ADJUSTABLE HANGER.

The Allith Flush Adjustable Hanger is the only Hanger on the market which ensures a wind-tight, storm-proof, rain-tight, and absolutely weatherproof Door.



The Allith Trolley Track is self-cleaning made from 13 gauge steel. We also make the Allith Trolley Hanger (as illustrated), with an apron or pendant. Track and wheels are the same as in the Flush, but differ on the door attachment. In the Trolley Hanger, door overlaps the same as all other Hangers on the market.

FIRE-DOOR FIXTURES.

Our Fire-Door Fixtures are regularly inspected and labelled under the direction of the Underwriters' Laboratories (Inc.)

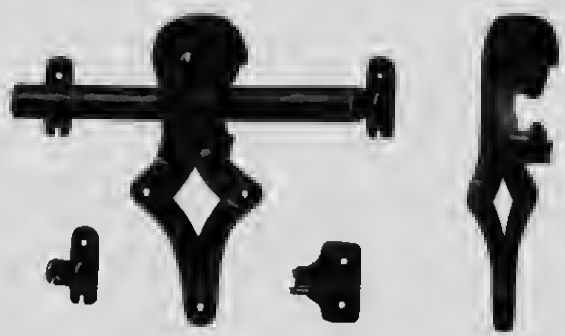
All styles made Sliding, Swing, Vertical.

Write for drawing illustrating latest device for Swing Fixtures, Malleable Fixtures, Round Steel Track with Adjustable Supports.

IMPORTANT. In ordering Fire-Door Fixtures, give width of opening (not width of door) and thickness of door.

"RELIABLE" DOOR HANGER AND TRACK.

The "Reliable" Door Hanger and Track has stood the test for years, and is, to-day, acknowledged the easiest running combination on the market.



PARLOUR DOOR HANGERS.

Supports are adjustable, can be slid along track to a place where grip is strongest. The "Reliable" Track is different from the old style track with the rivetted supports.

THE GALT STOVE & FURNACE CO., LIMITED

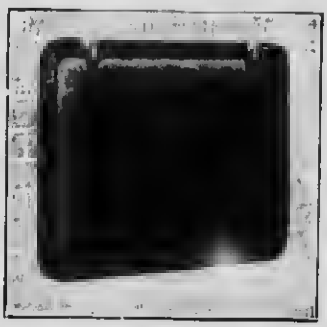
GALT, ONTARIO, CANADA.

AGENCIES
THE YOKES HARDWARE CO
TORONTO, ONT
C. A. RANKIN,
OTTAWA, ONT
BOSSE & BANKS,
QUEBEC, QUE
E. F. HARTNELL,
NO. 8 BEAVER HALL SQUARE,
MONTREAL, QUE

AGENCIES
GORMAN, CLANCY & GRINDLEY, LTD.,
EDMONTON, ALTA
GORMAN, CLANCY & GRINDLEY, LTD.,
CALGARY, ALTA
WILLIAM N. TUNELL CO., LTD.,
VANCOUVER, B.C.
DENNIS WIRE AND IRON WORKS CO., LTD
LONDON, ONT
THE WINNIPEG PAINT & GLASS CO.,
WINNIPEG, MAN.

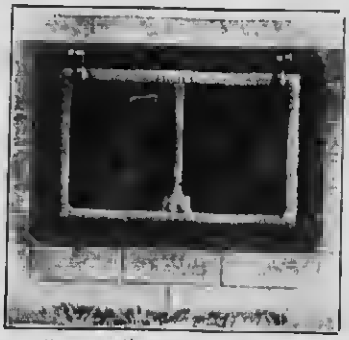
EVERY MODERN BUILDING SHOULD BE EQUIPPED WITH A "MAJESTIC" COAL CHUTE.

"MAJESTIC" COAL CHUTE. The "Majestic" Coal and Wood Chute is designed to be placed in the basement wall, the same as a window, for depositing coal, wood or other fuel into the basement, which is the storehouse for fuel in modern houses. It furnishes a protection to the building when the door is opened, and locks automatically when closed, rendering it positively burglar proof. The use of this chute avoids the nuisance of broken windows, badly disfigured or probably totally demolished window frames each time coal is put into the basement



"MAJESTIC" CHUTE, CLOSED.

"MAJESTIC" CHUTE, OPEN.



"MODEL" CHUTE, CLOSED.

"MODEL" COAL CHUTE. The "Model" Coal Chute is provided with two sheets of "Rubber Glass," which is transparent and serves as a window. A sheet of steel drops down over the glass, when the door is opened, protecting it from breakages. This steel sheet lies at the bottom of the hopper when the door is closed, allowing light to shine through the glass unobstructed. In the summer months the glass can be removed and a screen inserted, allowing pure ventilation.

CONSTRUCTION. These chutes are constructed with a cast-iron frame and a heavy steel body. They are strong and durable, so as to stand rough usage.

		NO	SIZE OF OPENING IN WALL.
"MAJESTIC."	Made in three sizes:	1.	16 in. high, 22 in. wide, 13 in. deep.
		2.	16 in. high, 27 in. wide, 13 in. deep.
		3.	22 in. high, 33 in. wide, 18 in. deep.
"MODEL."	Made one size only:	10.	16 in. high, 27 in. wide, 13 in. deep

Our booklet describes it more minutely. Send for a copy.

OTHER PRODUCTS. We are also manufacturers of Furnaces, Stoves and Ranges.

THE WHITTAKER STOVE WORKS

WINDSOR, ONT

PRODUCTS

We are manufacturers of FIREPLACE FURNISHINGS "only", ELECTRIC MANTEL GRATES, COAL GRATES, PORTABLE BASKETS, ANDIRONS, ASH DUMPS, IRON LININGS, etc.

DOME DAMPERS

A new damper, the mechanism of which is simplicity itself, and cannot get out of order. Has sloping top and ends, with a solid door. The door is operated from out side by a rod through the setting, and the pinion wheel and jaw is fully exposed from the inside, so that it is very easily put in position.

There can be no rattle in this damper caused by the wind blowing down the chimney, as the spring from the pinion wheel to side of damper eliminates all this trouble; this feature alone recommends the damper.

The door can be placed at any angle, and will remain at this point, thus giving a quick or slow combustion, as desired

This damper is of heavy construction, and, having a $2\frac{1}{2}$-in. flange in front, acts as an arch bar or lintel.

The door can be removed at any time by lifting it away from left end and drawing it away from opposite side.

No.	Front	Back	Depth	Base of Dome			Height of Dome
				Front	Back	Depth	
10	28	$22\frac{1}{2}$	16	24	$18\frac{1}{2}$	$12\frac{1}{2}$	5
	31	$28\frac{1}{2}$	16	30	$24\frac{1}{2}$	$12\frac{1}{2}$	5
	40	$34\frac{1}{2}$	16	36	$30\frac{1}{2}$	$12\frac{1}{2}$	5
	46	$40\frac{1}{2}$	16	42	$36\frac{1}{2}$	$12\frac{1}{2}$	5
	52	$46\frac{1}{2}$	16	48	$42\frac{1}{2}$	$12\frac{1}{2}$	5

ELECTRIC GRATES.

We make a large variety of designs in Electric Grates. The No. 15 Grate shown here is made only with 3 Radiator globes, size $24\frac{1}{2} \times 30\frac{1}{2}$.

Specify Electric Mantel Grates no odour no ashes no dust.

SIZES.

$24\frac{1}{2} \times 30\frac{1}{4}$ fitted with three 250-Watt heating globes; $30\frac{1}{2} \times 30\frac{1}{4}$ fitted with four 250-Watt heating globes. Wired with switch attached to grate ready to install.

CATALOGUE.

All Mantel and Tile Dealers carry a line of our goods, or apply direct to us. Send for catalogue.

DEARBORN HARDWARE MANUFACTURING CO.

2011 2019 CARROLL AVENUE,

CHICAGO, ILL.

REPRESENTED BY THE LEADING HARDWARE DEALERS.

PRODUCTS.

We are Manufacturers of all kinds of Sash Operating Devices for all kinds of Sash, including our "TRIUMPH," "RELIANCE," "IDEAL," "VICTOR," "PILOT," "PEERLESS," "PNEUMATIC," "TWIN," "DUPLEX," "MONARCH" and "STANDARD" OPERATORS, suitable for Factory Buildings, Railroad Shops, Power Houses, Government Buildings, Conservatories, etc.

"TRIUMPH" ROLLER-BEARING SASH OPERATOR.

The "TRIUMPH" Operator is provided with a worm and gear, and is a very powerful device of easy operation. It is especially designed for controlling Monitor and other skylight sash, as by means of idler sprockets the straps and chain connecting the Operator with the main shaft above, can be carried around corners and angles with the least possible friction, avoiding travelling cranes and other machinery.

A heavy roller bearing support, with brace, is placed on the main shaft near the sprocket wheel, giving the shaft extra support at that point.

This Operator will control a run of 125 feet in length of side pivoted sash and top or bottom hinged sash in proportion. It holds and locks the sash in any position and is made in two sizes.

"Ideal" Sash Operator

"IDEAL" SASH OPERATOR.

The "IDEAL" Operator is especially adapted to Monitor and Skylight Sash, where a vertical operating rod with hand wheel cannot be applied. The chain is brought down within easy reach from floor.

"Triumph" Roller Bearing Sash Operator.

This Operator will control a run of 100 feet in length of side pivoted sash and top or bottom hinged sash in proportion. Holds and locks the sash in any position and is made in several sizes.

SPECIFICATION.

The main or horizontal shaft to be not less than 1.5-16 inch O.D. Standard Pipe.

Shaft couplings for the main shaft made to properly clamp to the shaft by means of four strong bolts and properly set-screwed.

Shaft brackets to support the main shaft shall be placed on each mullion, except where sash are less than 3 feet wide.

Each Operator must be made to fit the trim, and so constructed that same can be properly bolted to mullions or wall, as the case may be, and held rigid at all times.

The levers or arms shall be made to clamp to the main shaft with two strong bolts, and provided with set screws.

The vertical or operating rod used on the Standard and Reliance Operators is to be not less than $\frac{3}{4}$ inch C.R. Steel, and must be provided with proper couplings and steady brackets.

All side pivoted sash, forty inches or more wide, and all top or bottom hinged sash thirty inches or more wide, shall have two lever connections each.

RELIANCE BALL BEARING DOOR HANGER COMPANY

NEW YORK CITY, N.Y.

AGENTS:

WM. N. O'NEIL CO., VANCOUVER AND VICTORIA.
DOUGLAS-MILLIGAN, LIMITED, MONTREAL, TORONTO AND OTTAWA
WAITE-FULLERTON CO., LTD., WINNIPEG AND CALGARY.

PRODUCTS. Manufacturers of Sliding Door Hangers and Elevator Door Locks and Drawer Slides

FACILITIES. All goods are made to order at our own Plant. Any ordinary order can be shipped within a week

CONSTRUCTION. All hangers are made with grooved tracks, with solid steel balls running in the grooves. No Wheels

ILLUSTRATIONS. Fig. 1. Made with drawn metal tracks, designed especially for light grille doors, bank work, etc., weighing up to 75 lbs. Known as Style "G."

Fig. 2. Style "C" for Single Door. From back of back plate to centre of bolt connecting to top of door $\frac{3}{4}$" to $1\frac{1}{8}$". Good hanger for thin door.

Fig. 3. Style "E" for Single Door. From back of back plate to centre of bolt for connecting to top of door $1\frac{1}{2}$" to 2". Adapted to wider and heavier doors

Fig. 4. Style "H." Double gear device for moving two doors in opposite directions at the same time. Allow 1" above back plate for opening device. Width of back plate 4" to 5".

Fig. 5. Style "K." Two-Speed Hanger for moving two doors in same direction, one at double the speed of the other. Allow 1" above back plate for opening device. Width of back plate 4" to 5".

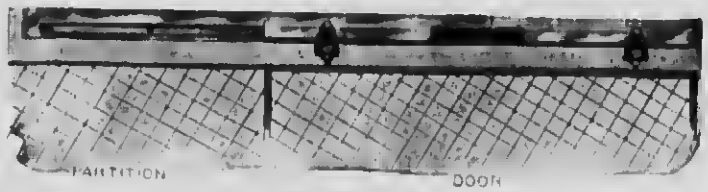


FIG. 1.—SHOWING SINGLE DOOR CLOSED

FIG. 2.—SHOWING SINGLE DOOR CLOSED

FIG. 3

FIG. 4.—SHOWS DOORS PARTLY CLOSED.

FIG. 5.—SHOWS DOORS CLOSING TO THE LEFT

CONTINUED ON NEXT PAGE

ILLUSTRATIONS

Fig. 9 Style B, with device to swing both door and panel into hall in order to get full width of opening. (This device can be used with any of our various makes of hangers.) It is used where it is impracticable to swing the transom bar overhead. We advise swinging the transom bar in all cases where possible. Width of back plate 3" to $3\frac{1}{4}$". From back of back plate to centre of bolt for top of door $\frac{3}{4}$"

Fig. 9 Style B, with device to swing door and panel into hall

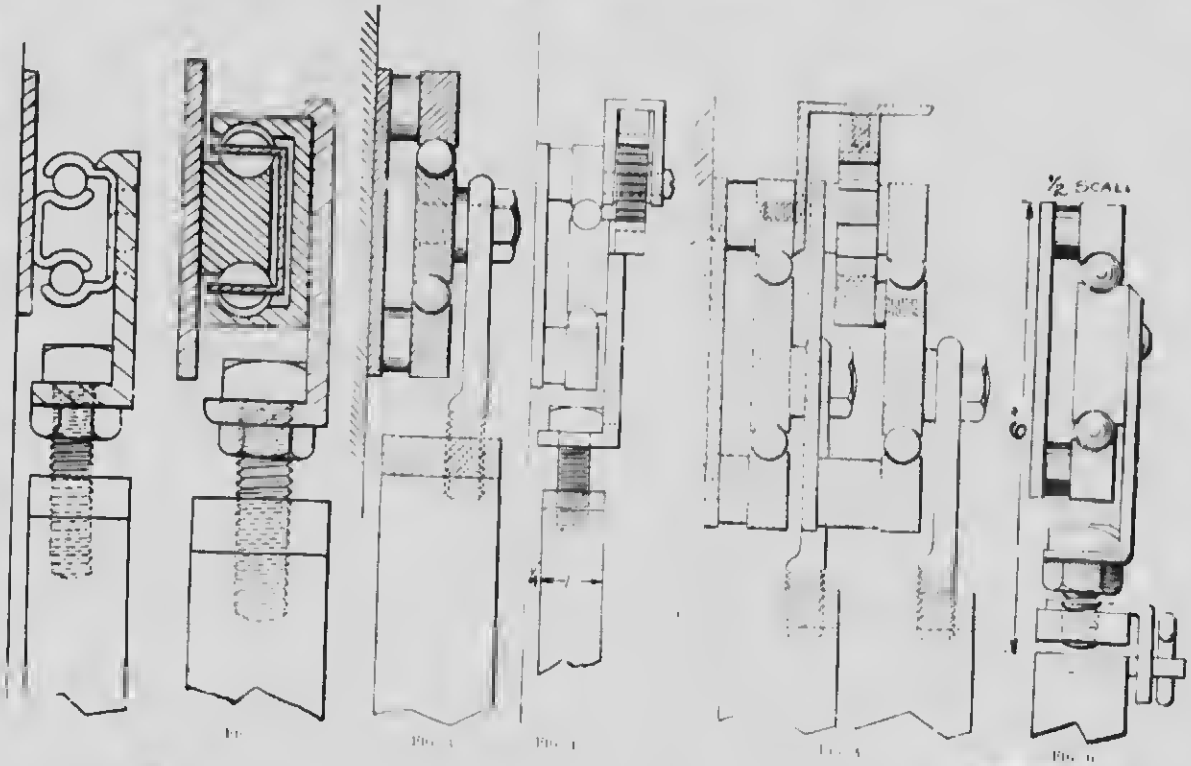


Fig. 1 Fig. 2 Fig. 3 Fig. 4 Fig. 5 Fig. 6

Corresponding front views with number about half size. These end elevations are

Fig. 10 BAR LOCK No. 90

With this lock the door can be opened with one straight pull on the handle, the catch on handle rotating enough so that the lock is disengaged. Can be either bronze or oxidized finish. Requires $\frac{1}{2}$" from face of door.

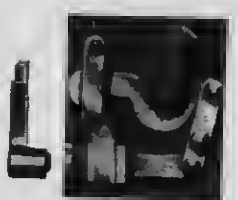


Fig. 8 GRAVITY LATCH No. 2

Can be arranged to unlock from hall. Has no projections beyond edge of door to catch clothing. Back plate $4\frac{1}{2}$" x $\frac{5}{8}$". Thickness $\frac{1}{2}$"

Fig. 11 BAR LOCK

Suitable for single or double doors. Dull finish brass tubing. Total length 4 $\frac{3}{8}$". Requires $\frac{1}{2}$" from face of door. Locks tracks of hanger.

SPECIFICATIONS. Specify "Reliance" Hangers, with name of opening device if double doors.

ORDERING. In ordering, please state actual width of sliding door (not the opening), thickness of same, approximate weight, whether of wood or iron; and if two or three doors travelling in same direction, state which way doors *close* looking from inside elevator car.

REFERENCES. We will furnish list of installations and any special information on request.

RICHARDS-WILCOX CANADIAN COMPANY, LIMITED

LONDON, ONTARIO.

RICHARDS-WILCOX MF'G COMPANY

AURORA, ILL., U.S.A.

MANUFACTURERS OF

DOOR HANGERS, FIRE DOOR HARDWARE, AND HARDWARE SPECIALTIES.

BRANCH OFFICES:

MONTREAL, QUE., 448 ST. PAUL STREET.
NEW YORK, N.Y., 85 WALKER STREET.
BOSTON, MASS., 132 PEARL STREET.
CHICAGO, ILL., 15 EAST LAKE STREET.
PHILADELPHIA, PA., 50 N. 6TH STREET.
ST. LOUIS, MO., 1609 CHEMICAL BLDG.

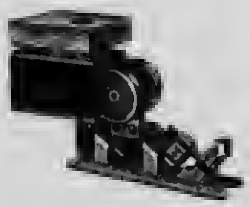
"A HANGER FOR ANY DOOR THAT SLIDES."

PRODUCTS. DOOR HANGERS for SLIDING DOORS of all kinds, sizes and weights; FIRE DOOR FIXTURES; OVERHEAD CARRYING SYSTEMS and HARDWARE SPECIALTIES.

SUGGESTION TO ARCHITECTS.

The reason there are so many unsatisfactory sliding doors in Canada is that sliding door hangers have been listed in the ordinary specification with nails and sash weights as "Rough Hardware." The only way to get good sliding doors is to specify good hangers—the difference in cost is a trifle.

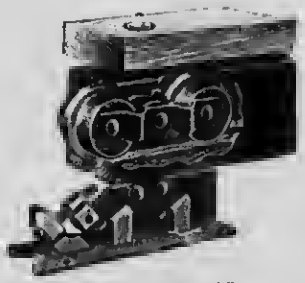
HOUSE DOOR HANGERS AND TRACK. R-W Trolley Door Hangers and Track are furnished with a wood header, which is easily installed. Adjustment in both hanger and track. If necessary, track can be easily taken down after walls are plastered. Weight is centre-hung, which does away with the binding and chafing commonly experienced with side-hung hangers.



R-W No. 19.

R-W 19 HERO BALL-BEARING TROLLEY DOOR HANGER. Has noiseless, fibre, ball-bearing wheels. Largely used because it is simple in form, inexpensive, strong and durable; meets all ordinary constructive requirements for sliding doors, and costs but a trifle more than the ordinary flat track hanger. (Actual vertical adjustment in side-hung hangers is from 3-8 in. to ¾ in. exclusively in hanger. R-W Trolley Hangers have 1½-in. adjustment in track in addition.)

R-W 122 "ROYAL" BALL-BEARING TROLLEY HOUSE DOOR HANGER. Designed for the best class of residences and apartment buildings. Has wide tread on wheels, which run on hard maple track. Two-wheel truck. Pendant hung from exact centre, distributing weight of door evenly, insuring true and noiseless operation. Easy and quick adjustment in both hanger and track.



R-W No. 122 "Royal."

R-W 135 SWIVEL AUDITORIUM DOOR HANGER. Made in four sizes; for folding and sliding partition doors. Vertical screw adjustment; ball-bearing swivel pendant. One No. 135 Hanger used on every other door, beginning with door farthest from half-door. Nos. 1 and 2 size furnished with metal wheels if desired.

Hanger No	For Track No.	Wheels Regular	Thickness of Doors	Distance from Top of Door to Heading Timber
135-0	30½	Steel ball-bearing	1¾-inch	4 inches
135-01	31	Steel ball-bearing	2¼-inch	5 inches
135-1	31	Fibre roller-bearing	2 and 2¼ inch	5 inches
135-2	33	Fibre roller-bearing	2½-inch	7¼ inches

R-W No. 135.

CATALOGUE No. 10. Have you our Catalogue on file? If not, kindly advise.

CONTINUED ON NEXT PAGE

R-W TROLLEY GARAGE BALL-BEARING DOOR HANGERS.

Represent the highest type of Hanger construction. Yokes made of one-piece steel drop forging. Adjustable vertically and laterally, compensating for settling and preventing chafing of doors. High duty steel balls, perfectly true, insuring easy and smooth operation.

Hanger No.	Track No.	Weight Doors Not Over
20½B	31	300 pounds
27½B	31	400 to 500 pounds
28½B	32	500 to 600 pounds
29½B	232	600 to 700 pounds

Special Catalogue of "Garage Door Equipment" on request.

No. 235 Hangers for Angle Doors, as per Fig. 1 below.

No. 29½B Hanger.

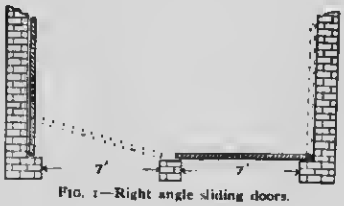


Fig. 1—Right angle sliding doors.

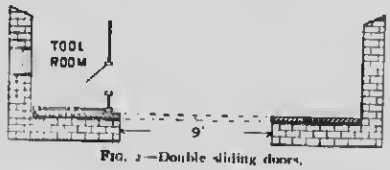


Fig. 2—Double sliding doors.

Fig. 4—Parallel sliding doors.
Note—Wicket doors shown on right end door.

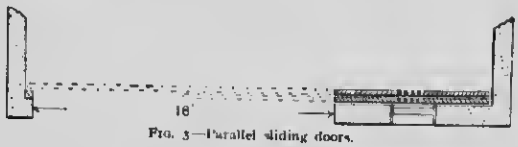


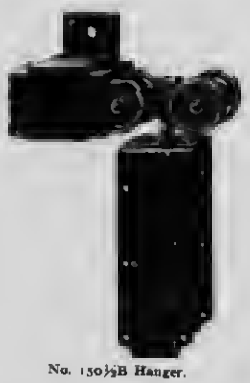
Fig. 3—Parallel sliding doors.

R-W TROLLEY DOOR HANGERS FOR BARNS, WAREHOUSES, FACTORIES, FREIGHT-HOUSES.

Strong, well-finished and run smoothly. Lateral adjustment to suit thickness of doors. Vertical adjustment to provide for settling of timbers. Track can be attached to side or ceiling supports. We make four sizes of track to accommodate various weights of doors.

No.	Thickness Doors	Weighing Not Over	Track	Adjustment
321	1⅜ in. to 2¼ in.	300 lbs.	No. 31	Lateral
27-1	2¼ in. to 2⅞ in.	400 lbs.	No. 31	Lateral
27-2	2¼ in. to 2⅞ in.	400 lbs.	No. 31	Lateral and Vertical
28-2	2¼ in. to 3 in.	500 lbs.	No. 32	
29-2	2¼ in. to 3 in.	600 lbs.	No. 232	
150	2¼ in. to 3¼ in.	750 lbs.	No. 33	
150½B	2¼ in. to 3¼ in.	1000 lbs.	No. 33	

All above roller-bearing, except 150½B, ball-bearing.



No. 150½B Hanger.

R-W LABELLED FIRE-DOOR HARDWARE.

The only Canadian manufacturers of flat track fire-door hardware bearing Underwriters' label. This hardware has maximum fire-resisting qualities, is easily installed, and superior in operation. Stocked by builders' hardware men at central points.

All styles: Sliding, Swinging, Vertical. Special fire-door hardware catalogue on request.

R-W 20 Fire-Door Hardware.

CARRIER SYSTEMS. SPECIAL WORK.

We furnish blue-prints and estimates on carrier systems and special hanger and fire-door work of all kinds.

LORD & BURNHAM CO.

GREENHOUSE DESIGNERS AND MANUFACTURERS.
IRVINGTON, N.Y.

TORONTO, CANADA:
12 QUEEN STREET E.

PHILADELPHIA, PA.:
FRANKLIN BANK BUILDING.

BOSTON, MASS.,
TREMONT BUILDING.

NEW YORK, N.Y.:
42ND STREET BUILDING.

CHICAGO, ILL.:
ROOKERY BUILDING.

ROCHESTER, N.Y.:
GRANITE BUILDING.

CLEVELAND, O.: SWETLAND BUILDING.

PRODUCT. SECTIONAL, IRON-FRAME GREENHOUSES AND CONSERVATORIES.

PALM HOUSE AND CURVED EAVE WINGS.
Ferruccio Vitale, Land. Arch

FIG. 1. SECTION A
CURVED EAVE HOUSE.

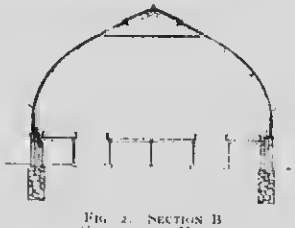


FIG. 2. SECTION B
CURVILINEAR HOUSE.

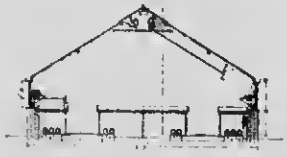


FIG. 3. SECTION C
SILL AND GUTTER HOUSE

DETAILS OF GREENHOUSE CONSTRUCTION

SECTIONAL CONSTRUCTION.

Our Sectional Iron-Frame Greenhouse has been developed and perfected through our constant efforts to secure greater durability and to meet the demand of gardeners for more light.

One section is formed by setting up two spans of rafters, 8 feet 4 inches apart, at either end of two lengths of cast-iron sills. The cross framing between these two spans of rafters consists of the gutters at the eaves and purlins between the eaves and ridge. These latter are placed the right distance apart to carry the roof bars. Another section may be added by setting up one more span of rafters 8 feet 4 inches further along, with cross framing, and so on, until you have the required number of sections for the length of the house.

STRENGTH.

The strength of this construction is in its steel-bar rafters placed thin edge to the light and framed between with steel angles for purlins, and in the method of securing the rafters to the sills at the joints, where two sections of sills meet, and to the gutters in the same manner, so that the sections of sill and gutter on either side of each span of rafters are united to the rafters as if they were part of them, making the entire iron frame of rafters, sills, gutters and purlins as one piece.

CONTINUED ON NEXT PAGE

MATERIALS. All iron is of the highest grade; the wood used is clear Gulf cypress of best quality, thoroughly air-dried. This wood grows in the swamps of Florida, and has proven to have no equal for withstanding the destructive conditions of constant moisture existing in greenhouses.

GLAZING. All glass is bedded in putty and supported by wooden parts, which prevent breakage by expansion and contraction.

REPAIRING. Aside from the usual repainting, the matter of repairs is a minor one, for the small roof bars are fastened with iron clasps, and it is a simple matter to unscrew, cut out the defective part and splice in a new piece.

ROOF LINE ACCENT. As the rafter caps and pilasters, which are larger than the glazing bars, are united at the end of each section, this point is accented, giving an effect of broad spacing throughout the entire roof and sides, not obtainable where the glazing bars are of one size and no rafters are used.

ERECTION. This is the ideal greenhouse construction, so scientifically worked out that the labour of preparing materials and erecting is reduced to a minimum. It is not a house that has to be cut and fitted by hand, on the job, but the entire frame is passed through a line of machines in our factory, where it is cut, shaped, punched, fitted and primed, ready for immediate erection. When the materials are delivered, it is merely a matter of bolting up the iron parts and fastening the screws. The expense of erecting is thus greatly reduced, practically equalizing the advance in cost of the iron-frame house over the wooden structure.

GREENHOUSE ERECTED FOR MRS. A. V. MACLAURIN, OTTAWA

BENCHES AND TABLES. Four kinds of construction are employed in our regular stock benches and tables:

BENCHES.—(1) Indestructible all cast-iron; sides, bottoms and ends cast in separate pieces; legs of pipe. (2) Galvanized-iron frames, with cypress bottoms and sides. (3) Galvanized-iron frames, with tile bottoms and cypress sides. (4) All cypress.

TABLES.—(1) Indestructible all cast-iron; sides, bottoms and ends cast in separate pieces; legs of pipe. (2) Galvanized-iron frames, with ¾-inch planed slate tops. (3) Galvanized-iron frames, with cypress tops. (4) All cypress.

VENTILATION. Ventilation sash are located at ridge and where required on the sides. They are in continuous runs, and are opened by our patented Ventilating Machinery, with hand wheel placed in convenient location.

HEATING. Coils of 3½-inch (I. D.) cast-iron pipes made up with caulked joints are generally located under the benches, where they do not take up any growing space, and are so arranged as to secure a free circulation of air around them. Their surfaces are so distributed as to give the desired temperature, with sufficient control in each compartment to produce the best growing conditions.

"Burnham" Boilers are used, with ample mains for carrying water to the coils.

The system is installed with sufficient grade to insure rapid circulation and even distribution. The coils are equipped with automatic air headers to prevent all air locks.

CATALOGUE. We have a very complete catalogue, to which you are most welcome.

THE McCLARY MANUFACTURING CO.

HEAD OFFICE AND FACTORIES:
LONDON, ONT.

BRANCHES:
TORONTO, MONTREAL,
HAMILTON, ST. JOHN, N.B.

BRANCHES:
WINNIPEG, VANCOUVER,
CALGARY, SASKATOON,
EDMONTON.

PRODUCTS. Your attention is respectfully drawn to McCLARY'S KITCHEN EQUIPMENT.
THE MOST MODERN AND COMPREHENSIVE LINE MADE.
APPLIANCES FOR COOKING BY COAL, STEAM OR GAS.
EVERYTHING FOR THE KITCHEN, THE SERVERY, THE PANTRY, OR SCULLERY.

INFORMATION. McClary's expert is at the disposal of ARCHITECTS, CONTRACTORS, HOTEL PROPRIETORS and PUBLIC BODIES, and will gladly confer with a view to designing special apparatus and laying out proposed equipments to obtain the most effective, most sanitary and economical working.

SANITARY FEATURES. We specialise this work, making the sanitary feature prominent. Every utensil and dish used in the establishment can be thoroughly sterilized.

A McClary-installed kitchen means a kitchen always pure and fresh and absolutely proof against vermin.

ADAPTABILITY. Hotel, Hospital, Asylum and Public Institution Kitchens equipped complete.

Grill rooms receive special attention. Designs made to suit space and required capacity. Highly finished ornamental designs or plain, neat and substantial apparatus as desired.

SPECIAL WORK. Cafeterias and Self-Help Restaurants designed in compact form. Drawings and prices gladly submitted.

CO-OPERATION. Let us co-operate with [illegible]. We are experts in kitchens and cooking apparatus. Opinions, designs and detail drawings free and without obligation. Consider our proposition and if you like it specify for and give us your business.

THAT'S ALL WE ASK.

CONTINUED ON NEXT PAGE

McCLARY'S HOTEL RANGE.

DESCRIPTION. The largest Hotel Range manufactured for one central cooking space.

Has eight fires and sixteen ovens.

Length of Range, 38′ 6½″ over all and 6′ 8″ in width.

Supplied with a Canopy Top of Monel Metal 40′ 6″ ove. and 8′ 0″ in width, and a Canopy "T" 12′ 0″ long by 10′ 9″ wide.

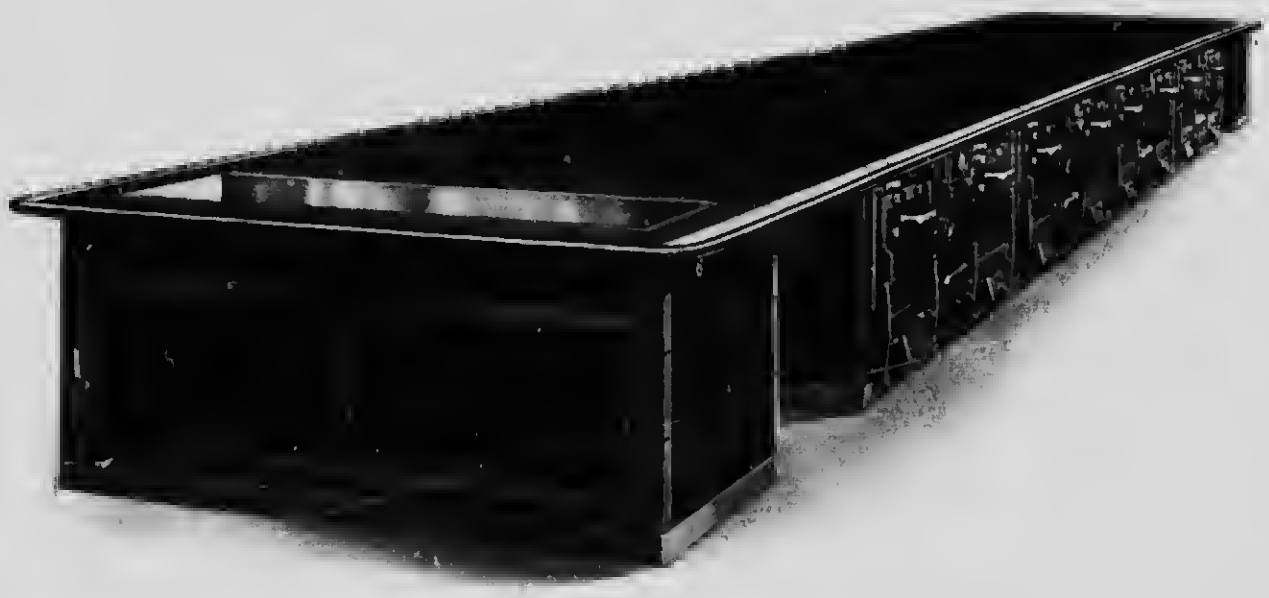
Entire weight of Range, 13 tons; and Canopy, 3,000 lbs.

Has two coal trucks and warming closet with bain-marie at each end.

Body of Range constructed of 10 Gauge Steel.

Rail of 1½″ shafting steel; weight, 650 lbs.

Secret Flues.



OTHER SPECIALTIES. Carving Tables, Serving Tables, Dish Washing and Bakers' Machinery.

Steam Jacket Kettles—Copper, Aluminum and Cast Iron.

Steam Sectional Vegetable Cookers, Urns and Urn Stands, Hospital Ward Diet Tables, etc.

WRITE FOR CATALOGUE.

THE GURNEY FOUNDRY COMPANY, LIMITED

HEAD OFFICE AND FACTORIES:
TORONTO, ONTARIO.

STOCK ALSO CARRIED AT MONTREAL, WINNIPEG, HAMILTON, CALGARY, EDMONTON, VANCOUVER

PRODUCTS. (HOTEL DEPARTMENT.) "JOHN BULL" STEEL PLATE HEAVY DUTY HOTEL RANGE, "JOHN BULL" HEAVY DUTY GAS RANGE, CHARCOAL AND GAS BROILERS, PORTABLE BANK OVENS, CARVING TABLES, SERVING TABLES, WARD TABLES, URNS, Etc. We design and make SPECIAL and REGULAR EQUIPMENTS for Kitchens, Serveries, Pantries and Scullieries.

QUALITY STANDARD. Best demonstrated by the following list of Kitchens equipped by us and giving perfect satisfaction.

HOTELS.

Chateau Laurier, Ottawa
Prince George, Toronto
New Russell, Ottawa
Canadian Northern, Port Arthur.
Windsor Hotel, Montreal.
Alexandra Hotel, Calgary.
King Edward, Edmonton
Fort Garry Hotel, Winnipeg.

RESTAURANTS AND CAFES.

T. Eaton Co., Toronto.
T. Eaton Co., Winnipeg.
R. Simpson Co., Toronto.
Restaurants of the Canadian Railway News Co
Canadian Northern Dining Cars.
Hudson Bay Co., Winnipeg, Calgary and Edmonton.

CLUBS.

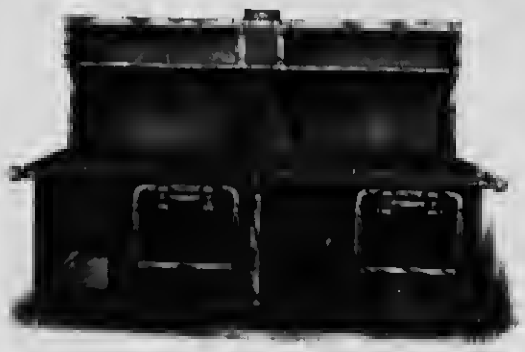
Rosedale Golf Club.
Rideau Hall, Ottawa.
Carleton Club, Ottawa
National Club, Toronto.
Royal Canadian Yacht Club.
Engineers' Club, Montreal.
Manitoba Club, Winnipeg.

INSTITUTIONS, ETC.

Toronto General Hospital
St. Michael's Hospital.
Central Prison, Toronto.
Niagara Navigation Company's Steamboats.
Selkirk Asylum, Selkirk.
Algoma Central and Hudson Bay Railroads.

SPECIFICATIONS AND PLANS. As the reputation of our products means much to us, we maintain a Kitchen Equipment Department, which makes a business of laying out Kitchens, so that our apparatus, when installed, will give the utmost satisfaction in the way of service to our customer. The service of this Department is at the disposal of anyone who is interested.

SPECIFICATIONS. Heavy wrought steel body, lined throughout with firebrick. Top of extra heavy casting. Fire-box is lined with 6-in. firebrick all around, except on oven side, where 4 inches of brick are backed by heavy plate of gray iron. This Range can be supplied in sections from one fire one oven to any number desired, and in various sizes of ovens from sixteen inches to twenty-seven inches. Following is a list of stock sizes, with dimensions, etc.:



"JOHN BULL" STEEL PLATE, HEAVY DUTY HOTEL RANGE
Illustrating Nos. 112 and 222, with Double High Shelf, French Top.

No. Oscillating Grate	No. Simplex Grate		Fires.	Ovens	Top Cooking Surface Length	Top Cooking Surface Width.	Oven Dimensions Width.	Depth.	Height
111	221	John Bull	1	1	1 ft. 2 in	x 3 ft 6 in	22 in.	x 28 in	x 17 in.
112	222	John Bull	2	2	8 ft 2 in.	x 3 ft 6 in	22 in	x 28 in	x 17 in
113	223	John Bull	1	1	12 ft. 2 in	x 3 ft 6 in	22 in	x 28 in.	x 17 in.
131	101	John Bull	1	1	4 ft 4 in	x 3 ft 6 in.	24 in.	x 28 in.	x 17 in.
132	102	John Bull	2	2	8 ft 8 in	x 3 ft 6 in.	24 in	x 28 in.	x 17 in
133	103	John Bull	3	3	12 ft 8 in	x 3 ft 6 in	24 in.	x 28 in	x 17 in
144	104	John Bull	1	4	16 ft 11 in.	x 3 ft 6 in	24 in	x 28 in.	x 17 in.
	202	John Bull	1	2	6 ft 1 in.	x 3 ft 6 in.	22 in.	x 28 in	x 17 in
	201	John Bull	1	1	10 ft 1 in.	x 3 ft 6 in	22 in	x 28 in.	x 17 in
	204	John Bull	3	4	14 ft 2 in.	x 3 ft. 6 in	22 in.	x 28 in.	x 17 in
	"A"	John Bull	1	2	4 ft. 6 in	x 3 ft. 11 in	16 in.	x 24 in	x 13 in.
	"B"	John Bull	1	2	5 ft. 10 in.	x 3 ft. 11 in.	18 in.	x 24 in	x 15 in.
	"C"	John Bull	1	2	8 ft. 4 in.	x 3 ft. 11 in	20 in.	x 24 in.	x 15 in.
	"D"	John Bull	1	4	6 ft 4 in	x 3 ft 11 in	24 in.	x 24 in.	x 15 in.
	12-24	Parific	1	2	7 ft. 5 in	x 3 ft 6. 10 in.	24 in	x 22 in	x 18 in.
	10-24	Parific	1	3	9 ft. 1 in.	x 3 ft 11 in.	24 in.	x 22 in	x 16 in.
	12-CL	Gurney-Oxford C Series (Soft Coal)	1	2	7 ft 11 in	x 3 ft 0 in	24 in	x 24 in.	x 17 in.
	10-CL	Gurney-Oxford C Series (Soft Coal)	1	3	10 ft. 11 in	x 3 ft 11 in	24 in.	x 24 in.	x 17 in.
	12-CR	Gurney-Oxford C Series (Soft Coal)	1	2	7 ft 10 in.	x 3 ft. 11 in	24 in	x 24 in.	x 17 in.
	10-CR	Gurney-Oxford C Series (Soft Coal)	1	3	10 ft 11 in.	x 3 ft 0 in	24 in	x 24 in	x 17 in.

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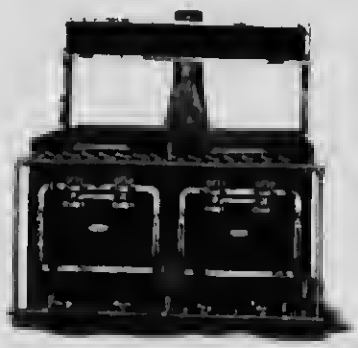
"JOHN BULL" GAS RANGE.

"JOHN BULL" HEAVY DUTY GAS RANGE, FOR MANUFACTURED OR NATURAL GAS. MADE WITH AS MANY OVENS AS DESIRED.

SPECIFICATION.

Range made of best quality material throughout, has extra large oven, heated with beaver tail burners. Oven bottom is protected with special brick lining, insuring even heat distribution. Brick lining, top and oven burners instantly removable for cleaning.

	No. 124 K. 1 OVEN.	No. 224 K. 2 OVENS.
Dimension of each Oven	24 x 28 x 17 in.	24 x 28 x 17 in.
Dimension of Cooking Surface	28 x 28 in.	57 x 28 in.
No. of Top Burners	4	8
Size of Gas Connection	1 in.	1 1/2 in.
Approx. Shipping Weight, Range only	500 lbs.	1,000 lbs.
Floor Space Required.	28 x 36 in.	57 x 36 in.



J. B. Gas Range.

GURNEY-OXFORD PORTABLE BAKE OVEN.

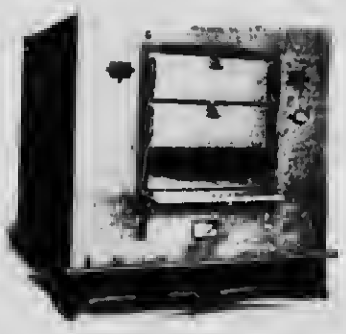
Coal, wood or gas. Made in four sizes:

No. E-138 54 in. wide x 63 in. high x 68 1/2 in. deep.
Capacity, 2-lb. loaves. 138
Capacity, 4-lb. loaves 69

No. A-36 50 in. wide x 60 in. high x 24 in. deep.
Capacity, 2-lb. loaves 36
Capacity, 4-lb. loaves 18

No. B-54 50 in. wide x 60 in. high x 31 in. deep.
Capacity, 2-lb. loaves 54
Capacity, 4-lb. loaves 27

No. C-72— 54 in. wide x 61 in. high x 42 in. deep.
Capacity, 2-lb. loaves 72
Capacity, 4-lb. loaves 36



Gurney Oxford Portable Gas Bake Oven

GURNEY-OXFORD GAS AND CHARCOAL BROILERS.

Note the quick-working oven over the broiler. Gas Broiler made in two sizes:

No. 24 A— Width, 24 in. No. 30 A— Width, 30 in.

French Charcoal Broiler made in three sizes:

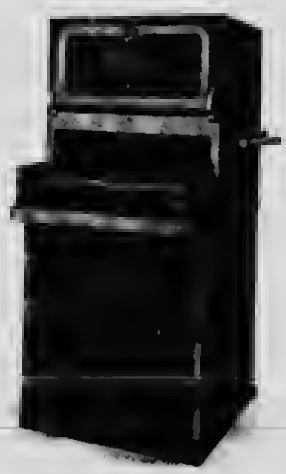
No. 24 A 24 x 46 x 58 in. No. 30 A 30 x 50 x 58 in.
No. 36 36 x 50 x 58 in.

GURNEY-OXFORD UPRIGHT WARMER.

Constructed of planished polished steel or galvanized iron. Made in three sizes:

No. 30—3 ft. wide x 2 ft. deep x 5 ft. 9 in.
No. 40—4 ft. wide x 2 ft. deep x 5 ft. 9 in.
No. 50—5 ft. wide x 2 ft. deep x 5 ft. 9 in.

Gurney Oxford Upright Warmer.



Gurney-Oxford Gas Broiler.

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GURNEY-OXFORD HOSPITAL WARD OR DIET TABLE

SPECIFICATION

This appliance combines in a most sanitary and compact form an efficient Carving Table, Plate Warmer, Broiler, Toaster and Hot Plate, with ample capacity for the preparation of special dishes for an ordinary public ward or for a number of private wards.

The Steam Table section of this device contains one enamelled meat platter and four vessels, in which may be heated various diets.

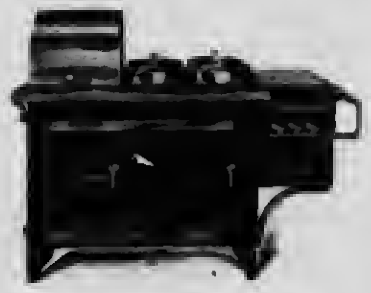
Beneath this steam table top, which is absolutely sanitary and removable, and below the returned copper water pan, is a warming closet for warming the service dishes for the ward.

Above the Broiler, which has ample capacity for broiling and toasting, is a modern sanitary, nickel-plated hot plate, made so that it can be taken entirely apart for cleaning, and with burners for keeping soups, broths, etc., warm. A feature of the burners in this apparatus is that they are absolutely quiet, being so constructed that it is impossible for them to fire back, which is very desirable in the hospital.

We can supply this type of Ward Table in a number of combinations, though that illustrated and described above is easily the most popular.

DIMENSIONS OF TYPE ILLUSTRATED.

Length over all	5 ft 2 in.
Width over all	2 ft. 10 in.
Gas Connection	¾ in.



HOSPITAL WARD OR DIET TABLE

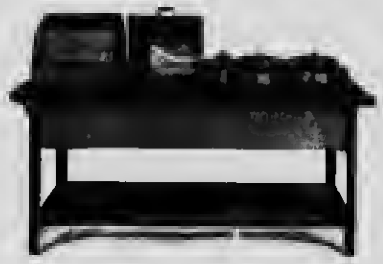
"THE TABLE WITH THE SANITARY TOP"

"G SERIES" CARVING TABLE.

SPECIFICATION.—These Tables can be made up in any combination of meat, vegetable, soup or gravy sections, and with warming closet or skeleton type, as illustration.

One meat section is 18 in. long
One vegetable section comprises 2 kettles; is 12 in. long.
One soup section comprises 2 vessels; is 12 in. long.
One gravy section comprises 2 boats; is 6 in. long.

224-G	5 ft. 6 in.—2 meats, 2 gravies, 4 vegetables.
226-G	6 ft. 6 in.—2 meats, 2 gravies, 4 vegetables, 2 soups.
324-G	7 ft. 0 in.—3 meats, 2 gravies, 4 vegetables.
326-G	8 ft. 0 in.—3 meats, 2 gravies, 4 vegetables, 2 soups.
444-G	9 ft. 0 in.—4 meats, 4 gravies, 4 vegetables.
446-G	10 ft. 0 in.—4 meats, 4 gravies, 4 vegetables, 2 soups.

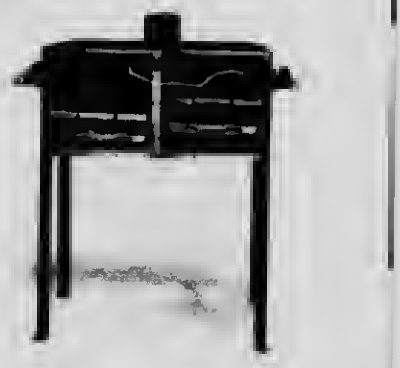


CARVING TABLE.

GURNEY-OXFORD GAS GRIDDLE AND TOASTER

Fitted with cast iron, polished griddle plate on top. A complete toaster and broiler underneath is heated from same burners as griddle. Made in two sections, entirely independent, and, as each section has five burners, any degree of heat may be obtained.

Size of Griddle	16 in. wide, 33 in. long.
Number of Burners	10.
Size of Gas Connection	1 in.
Approximate Shipping Weight	300 lbs.
Height to Top of Griddle	44 in.



GURNEY-OXFORD GAS GRIDDLE AND TOASTER

COMBINATION WARMER AND SERVING TABLE

These Warmers are built of planished, polished steel, with nickel-plate trimmings, or of galvanized iron, with black japanned trimmings. Top is made of heavy ¼ in. polished steel plate.

Can be fitted with hot water or steam coils, or fitted for gas heating.

Any number of units can be combined.

	No. 60.	No. 100.
Dimensions	6 ft. x 3 ft. x 3 ft. high	10 ft. x 3 ft. x 3 ft. high
Weight	600 lbs.	1,000 lbs.

COMBINATION WARMER AND SERVING TABLE

GURNEY-OXFORD URNS, WITH CUP WARMER AND URN STAND.

GURNEY-OXFORD URNS.

SPECIFICATION, 3-PIECE SET.

No.	CAPACITY OF EACH COFFEE URN.	CAPACITY OF H.W. URN.
400	4 gal.*	6 gal.*
600	6 gal.	10 gal.
800	8 gal.	12 gal.
1,000	10 gal.	15 gal.
1,200	12 gal.	18 gal.

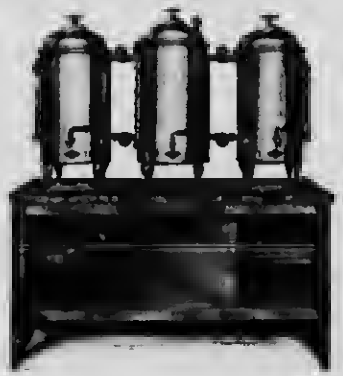
SPECIFICATION, 2-PIECE SET.

No.	SIZE OF COFFEE URN.	SIZE OF WATER URN.
40	4 gal.*	6 gal.*
60	6 gal.	10 gal.
80	8 gal.	12 gal.
100	10 gal.	15 gal.
120	12 gal.	18 gal.

SPECIFICATION, SINGLE COFFEE URN.

NO.	SIZE.
3	3 gal.*
4	4 gal.
5	5 gal.
6	6 gal.
8	8 gal.
10	10 gal.

*Wine Measure.



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PATENT CAST IRON STEAM JACKET KETTLE OR COOKER.

STEAM JACKET KETTLE.

SPECIFICATION.—Accompanying cut illustrates the very latest pattern of Steam Jacketted Iron Kettle, which is conceded to be the very best and cheapest steam jacketted kettle made. These kettles are Cast Seamless that is, without bolted or packed joints of any kind to wear out or leak. They are extremely quick and satisfactory in operation, arising from the fact that the area of steam surface on the sides is unusually large, keeping the contents constantly agitated and preventing adhesion of same to bottom of kettle. Galvanized iron cover is fitted with brass hinges and trimmings. Fitted with brass draw-off cock.

CAPACITY.	OUTSIDE DIMENSIONS. DIAMETER.	HEIGHT.
30 gal. ..	2 ft. 7½ in.	3 ft. 2 in.
40 gal. ..	2 ft. 7½ in.	3 ft. 2 in.
50 gal.	2 ft. 10¼ in.	3 ft. 2 in.
60 gal.	2 ft. 10¼ in.	3 ft. 5¼ in.

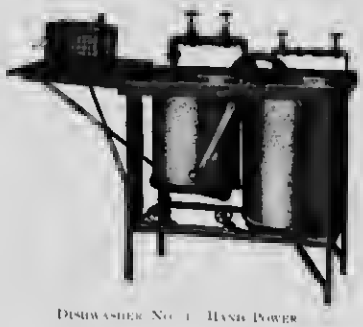
JACKET KETTLE

BLAKESLEE DISHWASHING MACHINES.

DISHWASHING MACHINES.

NO.	POWER.	CAPACITY, DISHES PER HOUR.	FLOOR SPACE.	SUD TANKS.	RINSING TANKS
1	Hand	1,000	20 x 40 in	1	1
2	¼ H.P.	2,000	20 x 40 in.	1	1
3	½ H.P.	3,000	30 x 46 in.	1	1
5	½ H.P.	7,000	48 x 32 in.	1	1
6	1 H.P.	8,000	76 x 36 in.	2	1
7	1½ H.P.	12,000	102 x 36 in.	3	1

All above sizes made for steam, gas or gasoline heaters. Equipped with trolley attachments for lifting baskets; smaller sizes may be equipped with this attachment if desired, but is an extra. Where electric motor is used, specify type and voltage current. Blakeslee Niagara No. 50, ½ H.P.; No. 80, 1 H.P.



DISHWASHER NO. 1 HAND POWER

GURNEY-OXFORD GALVANIZED SINKS.

SINKS.

These Sinks are made of heavy gauge galvanized steel on japanned angle steel frames. Made with one, two or more compartments, as desired, with or without drain boards. Fitted with waste and standing overflow plugs and strainer.

NO.	COMPARTMENTS.	LENGTH.	WIDTH.	DEPTH.	WEIGHT.
124	1	24 in.	24 in.	14 in.	115 lbs.
130	1	30 in.	24 in.	14 in.	150 lbs.
136	1	36 in.	24 in.	14 in.	190 lbs.
224	2	48 in.	24 in.	14 in.	220 lbs.
230	2	60 in.	24 in.	14 in.	285 lbs.
324	3	72 in.	24 in.	14 in.	330 lbs.

Size of Drainboard, 24 x 24 in. Other sizes made to order.

GURNEY OXFORD GALVANIZED SINKS

GURNEY-OXFORD SECTIONAL TOP COOKS' TABLE.

COOKS' TABLES.

The top of this table is built of thoroughly seasoned hard maple, put together in strips 2 in. wide by 3 in. thick, with bolts running through from side to side. Into this top is set flush a bain marie. The price on table does not include bain marie or dishes. Below the table top are well made and easy running locked drawers for the chef's tools. The table is mounted on heavy black japanned pipe legs, with flanges to fasten to the floor.

NO.	DIMENSIONS.	WEIGHT.
8	8 ft. x 3 ft. 6 in.	475 lbs.
10	10 ft. x 3 ft. 6 in.	600 lbs.
12	12 ft. x 3 ft. 6 in.	725 lbs.

Other sizes on application.

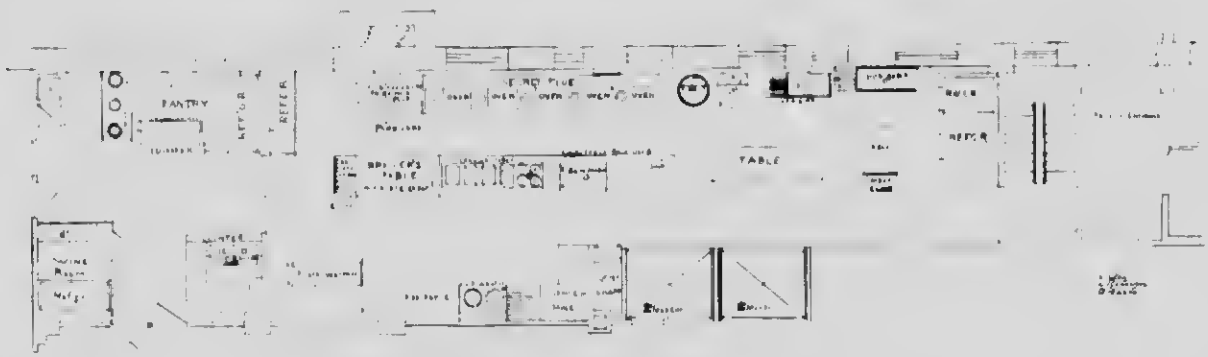
WROUGHT IRON RANGE COMPANY

151 KING STREET WEST,
TORONTO, ONT.

PRODUCTS. We are manufacturers of "HOME COMFORT" KITCHEN OUTFITS for Hotels, Restaurants and Institutions, including RANGES, BROILERS, TEA AND COFFEE URNS, CARVING TABLES, DISH WASHERS, POTATO PARERS, etc.

We make a specialty of Re-tinning and Repairing.

"HOME COMFORT" STEEL HOTEL RANGES. Are built of No. 10 gauge open hearth, close-annealed, cold-rolled steel; are equipped either with duplex, triplex or oscillating grates for operating every known kind of fuel. All working parts or parts liable to damage are of malleable iron, making the range practically indestructible.



PRACTICAL WORKING AND CONVENIENT KITCHEN PLAN FOR MODERN HOTEL.

SPECIAL DESIGNS. To the architect, builder, etc., who may be contemplating building a Kitchen Outfit, and will furnish us with a rough pencil sketch of the kitchen, showing location of dining-room, entrance from kitchen, and chimney flue, we will be pleased to furnish a diagram showing the proper layout of same. This is a feature in connection with large kitchens, where space is an important consideration, which we are well equipped to deal with.

INFORMATION. Write for catalogue illustrating complete list of lines handled by us, together with prices on same.

INSTALLATIONS. We have installed complete kitchen equipments in many of the largest Hotels and Institutions throughout Canada. The following are a few of the many:

King Edward Hotel, King Street East, Toronto, Ont.
Walker House, Front Street West, Toronto.
Woodbine Hotel, 102 King Street West, Toronto, Ont.
Palmer House, 146 King Street West, Toronto, Ont.
Grand Union Hotel, 174 Front Street West, Toronto, Ont.
Municipal Hotel, 67 Queen Street West, Toronto, Ont.
Hotel Cadillac, 6 Teraulay Street, Toronto, Ont.
Bay Tree Hotel, Cor. Adelaide and Bay Streets, Toronto, Ont.
Humber Beach Hotel, Humber Bay, Toronto, Ont.
Union Station Hotel, Front Street West, Toronto, Ont.
Orillia Hospital, Orillia.
Northern Navigation Company's Steamers.
R. & O. Navigation Company's Steamers.
Cafeterias, Limited, 16 King E., Toronto, Ont.
Westminster Private Hotel, Toronto.
Tusco Apartments, Toronto.

JAS. G. WILSON MFG. CO.

MANUFACTURERS OF VENETIAN BLINDS AND AWNINGS,

332 So. MICHIGAN AVENUE, CHICAGO, ILL.

3 WEST 29TH STREET, NEW YORK, U. S. A.

FACTORY, NORFOLK, VA

PRODUCTS.

VENETIAN BLINDS, Plain Style and Sliding (in Grooves); VENETIAN BLIND AWNINGS, Closed or Open Sides; VENETIAN ROLLING BLINDS.

WILSON'S "MODERN" VENETIAN BLINDS.

The "Modern" differs from the common Venetian in that its slats are readily fixed at any angle and a movement of the hand controls their position.

The "Modern" Venetian Blind roller hangs on steel brackets, bronze plated, and all working parts are most durable. The ladder tapes, upon which the slats are hung, can be of linen, silk, or bronze metal of choice design and attractive finish.

This blind cannot be pulled up *awry* and the most careless handling cannot disturb the even adjustment of the slats.

INSIDE VENETIAN BLIND.

SLIDING VENETIAN BLIND.

OUTSIDE VENETIAN BLIND CLOSED.

NO. 1 AWNING BLIND.

WILSON'S SLIDING VENETIAN BLINDS.

Constructed the same as the "Modern" except that the slats run in guide ways or grooves, which prevent disturbance by the wind when the window is open and thus obviate all possibility of noise or rattling. This blind can be placed on the inside or outside of the window.

WILSON'S OUTSIDE VENETIAN BLIND AND AWNING COMBINED.

Excludes the sun rays without interfering with the view or with the admission of air. The complete blind with sides cannot rattle or creak as the slats are set in a grooved firm frame. The jointed arms greatly facilitate its use.

The frame, when not extended, sets close to window sash, and the side slats fold up closely in a small space. This style can be furnished without the side slats.

In new buildings an invisible pocket can be provided to receive the blind when pulled up.

WINDOW IN RESIDENCE OF HENRY GOLDMAN, ESQ., ELBERON, N. J. Showing Wilson's Outside Venetian Awning Blind Extended with Slats Closed. Note—Also the Starboard Panel in circular head. This is a very artistic arrangement.

WINDOW IN RESIDENCE OF SAMUEL SACHS, ESQ. ELBERON, N. J. Showing Wilson's Outside Venetian Awning Blind Extended with Slats Wide Open

PRICES, CATALOGUES AND TESTIMONIALS Furnished upon request to the New York Office or nearest agent.

WINDOW IN WHITE HALL RESIDENCE OF H. M. FLAGLER, ESQ., PALM BEACH, FLA. Note—New treatment of circular head.

For our SPECIAL PROTECTIVE STEEL ROLLING DOORS AND SHUTTERS see our advertisement on page 360.
For our WOOD ROLLING PARTITIONS AND WARDROBES see our advertisement on page 83.

THE THORNTON-SMITH COMPANY

INTERIOR DECORATORS,

11 KING STREET WEST,
TORONTO

PRODUCTS. All kinds of Interior Decoration. Church Interiors a specialty. Wall Coverings, Decorative Plaster Work and Compo; Staff Mouldings, arton Pierre, Gesso, Tube Work, etc. Fabrics in silk, wool, cotton or linen, suitable for draperies, upholstering, etc. Imported and Domestic Carpets, Oriental Rugs, Hand-Tufted European Rugs, Scotch Wool Rugs, Linoleum, Cork Carpets. Leaded and Stained Glass, Glass Mosaics, Special Design Furniture. Period Reproductions. Electric Fixtures, etc.

FACILITIES. We are thoroughly equipped to undertake the execution of contracts for the decoration of buildings from designs received from architects, or drawn by our own artists. We are experts as to the goods in which we deal, and our close association with the manufacturers of Europe and this continent enables us to place at the command of our patrons the highest grade of Wall Coverings, Fabrics, Furniture, Carpets, Rugs, Electric Fixtures, etc.

CONTINUED ON NEXT PAGE

INTERIOR DECORATIONS We have our own staff of artists, capable of undertaking Mural decorations of the highest order, either in oil painting, fresco, plaster relief or gesso, also a large corps of skilled artisans

CONTRACT WORK We are prepared to submit tenders for plain painting and glazing, as well as the more elaborate forms of decoration, etc

WALL COVERINGS. Wall Papers We carry a large, well-selected stock of imported papers of the highest quality, as well as inexpensive papers [illegible] design, and have sample books of the leading manufacturers, orders from which can be promptly delivered

Other Wall Coverings Leathers, plain, tooled and embossed American and Japanese make, to order in any colour desired

SILK FLOCK.

Specially suited for panelled drawing rooms, as a substitute for silk brocade.

A Printed Linen.

TEKKO.

An admirable imitation of silk.

CONTINUED ON NEXT PAGE

SANITAS — An excellent sanitary wall covering for bathrooms, kitchens and hospitals.

ANAGLYPTA AND LEATHEROLE. — Decorative materials embossed in high and low relief; can be decorated to suit individual taste; are washable and sanitary, and make an excellent covering when the plaster is defective.

GRASS CLOTH. — An artistic Japanese wall covering, making a successful background for pictures.

BURLAPS. — Obtainable in every shade, can be had up to 72 inches in width; also Tex-ta-dor-na and Fabricona, dyed and backed burlaps.

DECOTEX. — Printed in good designs; backed.

CANVASSES. — We make a specialty of painted and stippled effects on canvas. Samples submitted on request.

SILKS. — Suitable for French panelled rooms.

TAPESTRIES. — Reproductions of old designs and foliage effects.

PLASTER WORK AND COMPO. — We are equipped to carry out plastering contracts of any size or description.

TUBE WORK. — An inexpensive method of obtaining relief, giving decorative effect when harmoniously coloured.

CONTINUED ON NEXT PAGE

FABRICS. An exclusive and carefully selected stock of fabrics always on hand, suitable for Curtains, Portieres and Furniture Coverings. Our tapestries and printed linens include both modern designs by such men as Walter Crane and William Morris, and faithful reproductions of Elizabethan and Jacobean embroideries. Materials for casement curtains in many varieties. Velours obtainable in all shades. Applique and embroidered curtains made to order.

We also carry a very large stock of samples from which import orders will receive our immediate attention.

SCHEME FOR SUMMER HOTEL.

RUGS AND CARPETS. Hand-tufted rugs made to order in any design, colour, shape or size special designs submitted. Oriental rugs sent on approval.

The Caledon Rug.—An inexpensive Scotch wool rug, artistic in design and colour, suitable for bedrooms or country houses.

GLASS. Designs and tenders submitted for leaded and stained glass.

GLASS MOSAIC. Rich and brilliant effects obtainable in church work with this medium, also suitable for any place where tiles might be used. Effective for shop and pavement signs.

ELECTRIC FIXTURES. See matter and cuts on pages 238-40.

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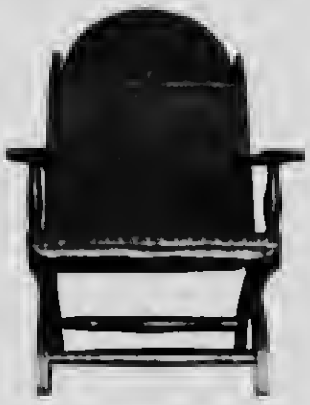


WOLFE'S CHAIR.

This Chair is made of Mahogany, inlaid in Satin and Tulip Woods, the seat being of Leather and elaborately tooled.

The Original Chair was presented to the Nation by H.R.H. The Prince of Wales, on the occasion of the Quebec Tercentenary, and was reproduced by us at the command of His Excellency the Governor-General.

Louis XIV.

FURNITURE.

Specially designed and executed to order.

Period Pieces faithfully reprodnced.

Board Room Furniture and Fittings. Sketches submitted.

Examples submitted for the complete furnishing of Clubs, Apartment Houses, Hotels, Yachts, and Private Houses.

Chippendale Ladder-back.

Louis XV.

Louis XVI.

THE BEAVER BOARD COMPANIES

931 Wall Street,
Beaverdale, Ottawa, Canada.

MANUFACTURERS OF BEAVER BOARD AND BEAVER TILE.

Plants: Beaverdale, Ottawa, Canada; Beaver Dams, Thorold, Ontario; Buffalo, N.Y.; Beaver Falls, N.Y.; Roanoke Rapids, N.C.

European Offices: 4 Southampton Row, London, W.C., England.

BEAVER BOARD.

Beaver Board is a pure-wood-fibre wallboard that is used to build walls and ceilings in every type of new or remodelled building—residences, stores, offices, churches, theatres, hotels, public buildings, factories, etc.

Beaver Board is made of selected woods reduced to fibrous form and pressed into panels about three-sixteenths of an inch thick, weighing about one-half pound per square foot. It is very strong, and blows which would ruin plaster do not injure Beaver Board.

Beaver Board is cream-white in colour and has a pebbled surface, which is painted after application. It is usually sized and covered with two coats of oil paint. Hot and cold water paints may also be used. Great opportunity is offered for artistic decoration.

Beaver Board is put up in panels, nailed directly to studding, joists and headers in new work, or over old material in remodelling. It is easily cut with a fine-tooth saw, and may be applied by any carpenter. The panel edges are covered with wood decorative strips, thus making possible an infinite variety of artistic and original effects.

Living Room with Beaver Board Walls and Ceiling.

Beaver Board will not crack, chip or crumble. It resists heat, cold and sound, and retards fire. Shocks, strains and vibration have no effect on Beaver Board, and it is elastic enough to meet ordinary shrinking and expansion of timbers, settling of building, etc.

BEAVER TILE.

Beaver Tile is made from the same materials as Beaver Board. It is marked in oblongs on the panels, and, when enamelled, has all the indentations and appearance of tile. Used for the walls of kitchens, bath-rooms, lavatories, laundries, restaurants; in fact, wherever a tile effect is desired and appropriate.

SIZES OF BEAVER BOARD AND BEAVER TILE.

Beaver Board is sold by building material, lumber and hardware dealers in panels 32 and 48 inches wide by 6, 7, 8 and 9 feet long. Beaver Tile is furnished in panels 48 inches wide by 8 feet long.

Additional sizes of Beaver Board and Beaver Tile in stock at factory for immediate shipment are: 32, 36 and 48 inches wide, in even foot lengths from 4 to 16 feet.

Beaver Board is put up in bundles containing about 300 square feet. Lengths 11 feet and over are crated.

Estimates are based on actual space, excluding openings.

SAMPLES AND LITERATURE.

Samples and booklets will gladly be mailed on request.

GORDON USBORNE

181 Lytton Boulevard,
Toronto, Ont. Phone: Main 2615.

PROFESSION. FIGURE and ORNAMENTAL SCULPTURE in BRONZE, MARBLE, TERRA COTTA, CAEN STONE and PLASTER. Figure and Animal Subjects a specialty.

Font Executed in Caen Stone.

FACILITIES. Having a thorough equipment, am prepared to undertake any plaster figure or ornament work desired

DESIGNS. Sketches in pencil will be submitted if requested or work done from architects' designs. Wax models made on a small scale for architects' approval before enlargement.

If desired, the finished work may be packed, shipped and placed in position at my risk.

Architects, or others interested, desiring further information will be supplied with photographs of work already executed.

THE GREENFIELD CONDUIT CO., LIMITED

TORONTO, ONT.

PRODUCT. We are sole manufacturers under patents of "GREENFIELDUCT" RIGID IRON CONDUIT.

DESCRIPTION. "GREENFIELDUCT" is a Hot Galvanized Conduit, both the Interior and Exterior surfaces being treated by a Patented Hot Galvanized Process. Molten Zinc is wiped over these surfaces in such a manner as to produce a perfectly smooth finish and a homogeneous coating of zinc throughout. It is afterward treated interiorly with a black japan finish, the accidental removal of which will not impair the integrity of the Conduit.

The threaded ends are clean and well cut and insure a rapid coupling.

UNDER-WRITERS' INSPECTION. "GREENFIELDUCT" is inspected and labelled under the supervision of the Underwriters' Laboratories (Inc.).

ADVANTAGE. Because of the high temperature to which the "GREENFIELDUCT" is subjected when the molten zinc is applied, the completed conduit is rendered more easily bent for installation purposes.

It is, to the greatest degree, proof against rust, and the finish will not crack, flake or scale.

It is the only Conduit manufactured in which the interior and exterior surfaces have the same treatment and finish.

It will withstand a test of at least seven dips in Standard Solution of Sulphate of Copper.

Other methods of treatment with zinc of the Interior and Exterior surfaces of Conduit do not afford the same smooth treatment as does ours.

LIST PRICE.

Standard Size Pipe Inches	Conduit, Price per 100 Feet	Elbows, Price per 100	Couplings, Price per 100	Internal Diameter Inches.	[illegible] Diameter, Inches.	Number of Threads per Inch of Screw.	Nominal Weight per Foot Pounds
½	$ 12.50	$ 32.00	$ 10.00	.62	.84	14	.85
¾	16.00	41.00	15.00	.82	1.05	14	1.12
1	24.00	62.00	18.00	1.04	1.31	11½	1.67
1¼	32.00	84.00	31.00	1.38	1.66	11½	2.24
1½	38.00	115.00	37.00	1.61	1.90	11½	2.68
2	52.00	200.00	53.00	2.06	2.37	11½	3.61
2½	80.00	340.00	76.00	2.46	2.87	8	5.74
3	107.00	900.00	113.00	3.06	3.50	8	5.54
3½	141.00	2,000.00	200.00	3.54	4.00	8	9.00
4	175.00	2,295.00	280.00	4.02	4.50	8	10.66

In writing specifications, specify "GREENFIELDUCT" Rigid Conduit.

INFORMATION, BOOKLETS, ETC. We solicit enquiries from architects, engineers, builders and contractors, and full information, booklets, etc., will be sent promptly upon receipt of such enquiries.

CONDUITS COMPANY, LIMITED

HEAD OFFICE AND WORKS: DON ROADWAY,
TORONTO, ONTARIO.
BRANCH OFFICE: MONTREAL, QUE.

PRODUCTS. We are sole manufacturers under patents of "GALVADUCT" and "LORICATED" IRON ARMOURED CONDUITS for interior construction.

GALVADUCT

DESCRIPTION "GALVADUCT" CONDUIT. Is a welded tube of high-grade mild steel of gas pipe thickness of wall, carefully cleaned of silicates, scale and burrs, and then electro-galvanized on the outside and coated inside with a superior and flexible enamel, which absolutely protects the tube from rust or the action of acids and alkalies contained in plaster and cement.

We call particular attention to the fact that the threads of "Galvaduct" Conduit being clean and free from any insulating substances, electrical conductivity is had at each joint; it is therefore positive that when properly grounded at any point, the metal of the entire conduit system is "permanently and effectually grounded," as required by the Rules and Requirements of the National Board of Fire Underwriters. With enamelled threads, this grounding is entirely problematical.

LORICATED

DESCRIPTION "LORICATED" CONDUIT. The same grade of pipe is used in the manufacture of "LORICATED" CONDUITS as in "GALVADUCT," which, after it has been cleaned by the same method, is coated outside and inside with a superior flexible and moisture-proof enamel, which renders it impervious to the action of acids and other chemicals. "Loricated" Conduits are coated and "baked" three times, which results in an enamel which will not "crack" or "scale" even when bent in coldest weather, and renders the pipe moisture and acid proof for all time.

APPROVAL OF UNDERWRITERS. Each tube is ten feet long, "threaded" on both ends, with coupling, and bears our name and Underwriters' Inspection Label.

Our Conduits are included in the list of Conduits examined under the standard requirements of the National Board of Fire Underwriters and by the Underwriters' National Electric Association, after exhaustive tests by the Underwriters' Laboratories, and have their approval.

STOCK CARRIED. We carry a large and well-assorted stock of each of the above types of Conduits at Toronto and Montreal, and can at all times make prompt shipments of extensive orders.

CONTINUED ON NEXT PAGE

REMARKS. Electrical Conduits for interior construction have developed through various types of wood moulding, paper tube, thin sheet metal encasing paper, wood or composition, and heavy iron or steel tubing lined, until they reached their highest state of perfection in "GALVADUCT" and "LORICATED" Conduits as manufactured in Canada solely by CONDUITS COMPANY, LIMITED, under Canadian and United States Letters Patent.

PRICE LIST OF "GALVADUCT" AND "LORICATED" CONDUIT, COUPLINGS AND ELBOWS.

STANDARD PRICE LIST IN EFFECT AUGUST 1ST, 1912

CONDUIT						COUPLINGS		ELBOWS			
Size	Actual Outside Diameter Inches	Nominal Inside Diameter Inches	Number Threads Per Inch of Screw	Nominal Weight Per Foot Lbs	Conduit Price Per 100 Ft	Size	Weight Per 1000 in Pounds	Price Per 1000	Weight Per 100 in Pounds	Radius Inches	Offset Inches	Price Per 100
½	.84	.36	18	.42	$ 12 50	½	6	$ 10 00	42	4 25	7 50	$ 12 00
¾	.97	.49	18	.56	13 50	¾	8	10 00	53	4 25	7 50	32 00
¾	.84	.62	14	.84	12 50	¾	14½	10 00	72	4 25	7 50	32 00
1	1 05	.82	14	1 12	16 00	1	25½	15 00	132	5 37	9 25	41 00
1	1 11	1 04	11½	1 67	24 00	1	40½	18 00	200	5 75	10 12	62 00
1¼	1 66	1 38	11½	2 23	32 00	1¼	57½	21 00	300	7 25	11 50	84 00
1½	1 90	1 61	11½	2 68	38 00	1½	71½	27 00	415	8 50	12 62	115 00
2	2 37	2 06	11½	3 61	52 00	2	132	53 00	700	9 50	15 25	200 00
2½	2 87	2 46	8	5 74	80 00	2½	185	70 00	1118	10 50	17 75	340 00
3	3 50	3 06	8	7 54	107 00	3	300	114 00	1585	13 00	19 17	900 00
3½	4 00	3 55	8	9 00	141 00	3½	400	200 00	2150	15 00	21 00	2000 00
4	4 50	4 02	8	10 00	175 00	4	412	280 00	2700	16 00	22 50	2295 00
4½	5 00	4 50	8	12 49	196 00	4½	540	340 00	3625	18 00	25 50	3300 00
5	5 56	5 04	8	14 50	230 00	5	600	510 00	5700	24 00	32 00	4850 00
6	6 62	6 06	8	18 76	290 00	6	1050	450 00	9175	30 00	52 00	8015 00

Tubes in 10 foot lengths, threaded both ends, with couplings Prices subject to change without notice.

REFERENCES. The appended list of buildings in which our Conduits have been installed is but a suggestion; this list is by reason of limited space cut down to a few buildings, and is intended solely to show the variety of buildings in which "GALVADUCT" and "LORICATED" Conduits have been used.

TORONTO.
"Casa Loma," home of Col. Sir Henry Pellatt.
Shea's Theatre.
Loew's Theatre.
Government House.
Traders Bank Building.
Home of J. C. Eaton.
Seminary of St. Augustine.
Lumsden Building.
C.P.R. Building.
Toronto Stock Exchange.
Head Office of the Bank of Toronto.
Toronto General Hospital.

MONTREAL.
Harbour Commission Elevator.
Bank of British North America.
Bank of Montreal.
C.P.R. Windsor Station.
Ritz Carlton Hotel.
Royal Trust Building.

WINNIPEG.
Lindsay Building.
Boyd Building.
Agricultural College.
Law Courts Building.
Fort Garry Hotel.
Winnipeg General Hospital.
Confederation Life Building.
Free Press Building.

CALGARY.
C.P.R. Hotel, Piedmont.
Hudson's Bay Stores.
Canada Life Building.
Anderson Apartments.
Lougheed Building.
Judge Travis Block.
Calgary Furniture Store.
Herald Building.

VARIOUS PLACES.

Louise Dock and Elevator	Quebec, Que.
Connaught Rifle Range	South Parkdale, Ont.
Chateau Laurier Hotel	Ottawa, Ont.
Maple Leaf Elevators	Port Colborne, Ont.
C.P.R. Shops	Ogden, Alta.
World Building	Vancouver, B.C.
Vancouver Hotel	Vancouver, B.C.
New Burns Block	Vancouver, B.C.
G.T.P. Hotel MacDonald	Edmonton, Alta.
Steamer "Hamonic"	G.T.R. Fleet.

ORPEN CONDUIT MANUFACTURING COMPANY OF CANADA

HEAD OFFICE AND WORKS: QUEEN AND DUFFERIN STREETS,
TORONTO, ONTARIO.

BRANCH OFFICE: MONTREAL, QUE.

PRODUCTS. We are sole Manufacturers of "XCELADUCT" GALVANIZED and "ORPENITE" ENAMELLED RIGID STEEL CONDUIT for interior construction.

DESCRIPTION, "XCELADUCT" CONDUIT. Is a High Grade of Spellerized Steel Tube, and is carefully inspected before our Modern System of Pickling and Plating begins, and then this material is doubly protected against rust, corrosion, atmospheric and climatic conditions by copper-plating and zinc-coating, with a smooth enamelled interior, which allows easy and rapid fishing.

We call particular attention to the fact that the threads of "Xceladuct" Conduit are cut clean, and, being free from any insulating substances, electrical conductivity is had at each joint; therefore, when properly grounded at any point, the metal of the entire conduit system is permanently and effectually grounded as required by the rules and requirements of the National Board of Fire Underwriters.

DESCRIPTION, "ORPENITE" CONDUIT. The same grade of pipe is used in the manufacture of "Orpenite" Conduit as in "Xceladuct," which, after being cleaned by the same method, is coated, both inside and outside, with Flexible Black Enamels, which have been selected with the utmost care as to finish, lustre, elasticity, and durability, being positively acid-resisting and are not affected by any dampness in walls or contact with lime, mortar or cement. The wires are constantly free from every disturbing influence on the insulation.

APPROVAL OF UNDER-WRITERS. Each tube is ten feet long, "threads" on both ends, with coupling, and bears Underwriters' Inspection Label, and label bearing our name.

STOCK CARRIED. We carry a large and well-assorted stock of both "Xceladuct" and "Orpenite" Conduits at Toronto and Montreal, and can at all times make prompt shipments of large orders.

PRICE LIST.

"XCELADUCT" GALVANIZED AND "ORPENITE" ENAMELLED CONDUIT COUPLINGS AND ELBOWS
WEIGHTS AND DIMENSIONS ARE NOMINAL

Size	Price per 100 Feet	Diameters External	Diameters Internal	Thickness	Weight per Foot, lbs.	Threads per Inch	Size	Couplings Price per 100	Couplings Wt. per 100 in lbs.	Elbow Price per 100	Elbow Wt. per 100 lbs.		Offset Inches.
½"	$ 12 50	840	674	083	425	18	½"	$ 10 00	6 0	$ 32 00	42	4 450	7 500
½"	12 50	875	493	091	568	18	½"	10 00	9 5	37 00	53	4 250	7 500
¾"	12 50	840	622	109	852	14	¾"	10 00	11 0	32 00	75	4 250	7 375
¾"	16 00	1 050	824	113	1 134	14	¾"	15 00	21 0	41 00	120	5 375	8 375
1"	24 00	1 315	1 049	133	1 684	11½	1"	18 00	34 3	62 00	200	5 750	9 500
1¼"	32 00	1 660	1 381	140	2 281	11½	1¼"	31 00	53 5	84 00	300	7 250	10 875
1½"	38 00	1 900	1 610	145	2 731	11½	1½"	37 00	74 3	115 00	427	8 250	12.625
2"	52 00	2 375	2 067	154	3 678	11½	2"	53 00	120 8	208 00	1700	9 500	14 250
2½"	80 00	2 875	2 493	203	5 819	8	2½"	76 00	172 0	340 00	1300	10 500	17.375
3"	107 00	3 500	3 068	216	7 616	8	3"	113 00	249.8	900 00	2700	13 000	19.500
3½"	143 00	4 000	3 548	226	9 202	8	3½"	210 00	424 1	2000 00	3100	15 000	21 250
4"	175 00	4 500	4 026	237	10 889	8	4"	281 00	474 1	2295 00	2700	16 000	22 500
4½"	190 00	5 000	4 506	247	12 642	8	4½"	308 00	550 0	3500 00	3100	18 000	24 375
5"	200 00	5 563	5 047	258	14 810	8	5"	330 00	700 0	4850 00	5500	24 000	32 000
6"	250 00	6 625	6 065	281	19 185	8	6"	450 00	750 0	6015 00	9000	30 000	39 750

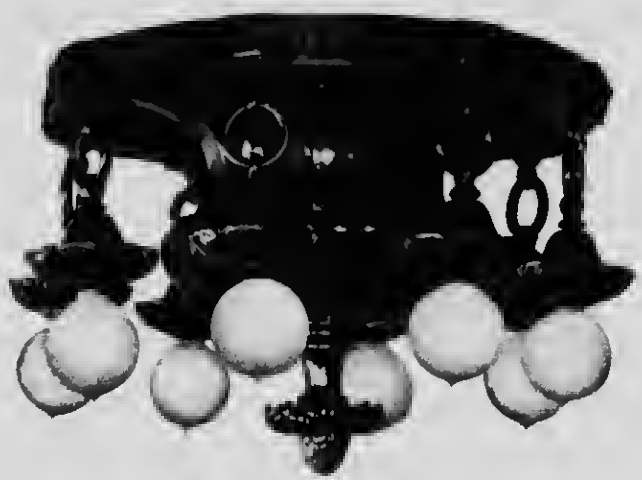
Conduits in 10 foot lengths threaded on both ends with one coupling
Conduit pipe is known and spoken of by its nominal inside diameter.

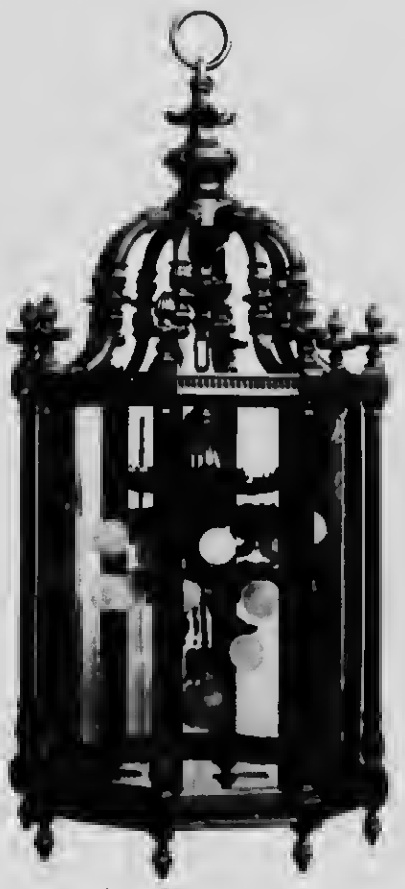
THE ROBERT MITCHELL CO., LIMITED

ESTABLISHED 1851.

OFFICE AND FACTORY:
BEL-AIR AVENUE, ST. HENRI,
MONTREAL.

PRODUCTS. We are makers of ELECTRIC LIGHTING FIXTURES, ORNAMENTAL IRON, BRASS AND BRONZE WORK, including Bank and Office Fittings, Memorial Tablets, Outside Lanterns, and Standards in Bronze and Wrought Iron, etc.





LIGHTING FIXTURES
St. Sulpice Library, St. Denis Street, Montreal, Que.
Eugene Payette, Architect.

7 ft. high, 3 ft. 6 in. wide.

SPECIAL DESIGNS. As a result of our large experience in the manufacture of Electric Lighting Fixtures we are in a unique position to submit or make special designs for the architect or owner, to conform to any style of exterior or interior architecture. We will also, if desired, assist the architect in laying out a proper system of lighting in order that the best effects may be achieved.

Photos and designs supplied on application.

CANADIAN GENERAL ELECTRIC COMPANY, LIMITED

MANUFACTURERS OF

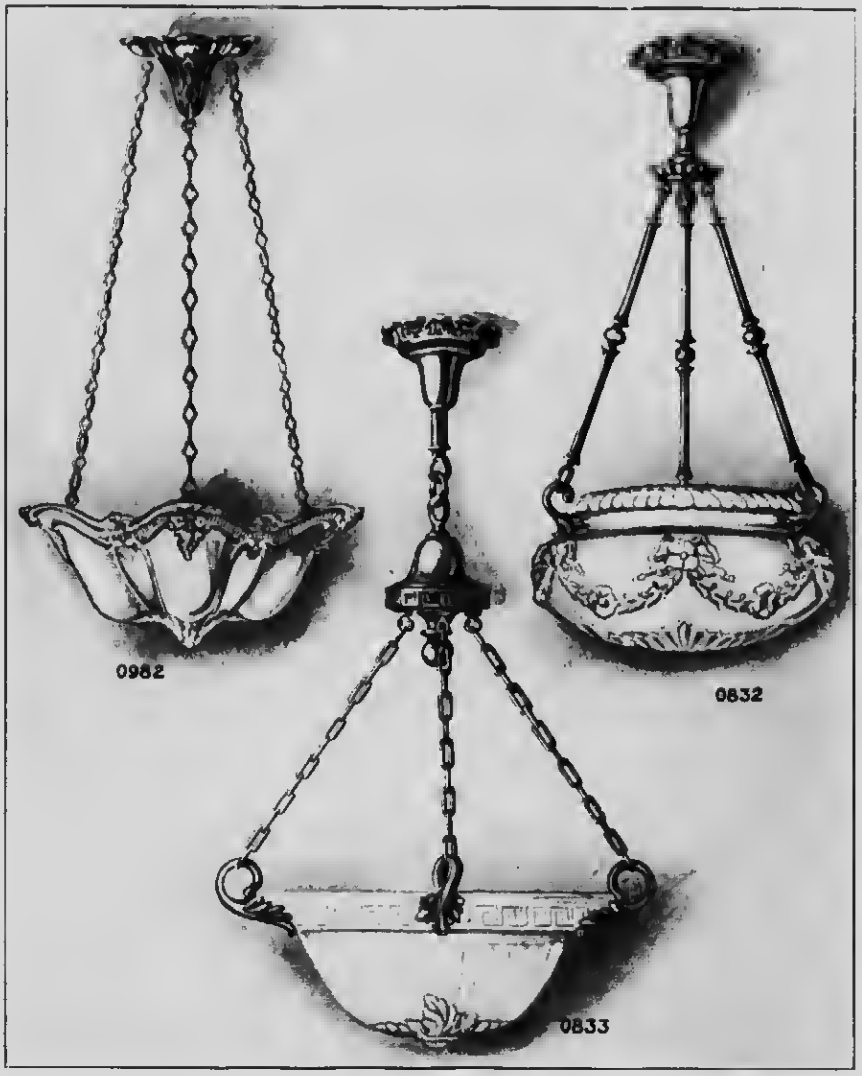
ELECTRICAL APPARATUS AND SUPPLIES FOR RAILWAY, LIGHT AND POWER PURPOSES.

HEAD OFFICE, - - TORONTO.

DISTRICT OFFICES

MONTREAL	SOUTH PORCUPINE	SASKATOON	VANCOUVER
HALIFAX	FORT WILLIAM	CALGARY	VICTORIA
OTTAWA	WINNIPEG	EDMONTON	PRINCE RUPERT
COBALT	REGINA	NELSON	

FIXTURES. Our Fixture Section is exceptionally well equipped to take care of the most exacting demands for high-class Fixtures.



DESIGNS. We shall gladly co-operate with the architect or contractor, submitting designs and making recommendations for the most up-to-date lighting.

CONTINUED ON NEXT PAGE

CANADIAN GENERAL ELECTRIC COMPANY, LIMITED

MANUFACTURERS OF

ELECTRICAL APPARATUS AND SUPPLIES FOR RAILWAY, LIGHT AND POWER PURPOSES.

HEAD OFFICE, - - TORONTO.

DISTRICT SALES OFFICES

MONTREAL
HALIFAX
OTTAWA
COBALT

PORCUPINE
FORT WILLIAM
WINNIPEG
REGINA

SASKATOON
CALGARY
EDMONTON
NELSON

VANCOUVER
VICTORIA
PRINCE RUPERT

PETERBORO WORKS.

PRINCIPAL PRODUCTS.

Arresters, Lightning.
Ammeiators.
Batteries.
Bell Goods.
Brushes.
Cable, Insulated.
Carbons.
Circuit Breakers.
Cords.
Conduits.
Controllers.
Cooking Appliances.
Fixtures.
Fans.
Generators.
Glassware.
Heating Appliances.
Insulators.
Instruments.
Ignition Appliances.
Lamps: Arc.
Mazda.
Carbon.
Locomotives.
Motors.
Motor-Generators.
Meters.
Ozonators.
Panel Boards.
Railway Overhead Material.
Railway Line Material.
Rectifiers.
Reflectors.
Regulators.
Rheostats.
Search Lights.
Storage Batteries.
Switches.
Switchboards.
Shades.
Street Fixtures.
Transformers.
Turbines.
Wire (Insulated and Bare).
Wiring Devices.

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

TORONTO. MONTREAL. WINNIPEG. VANCOUVER

ELECTRICAL MATERIALS.

PRODUCTS.

The FRINK AND J-M LINOLITE SYSTEMS OF ELECTRIC LIGHTING, J-M LINOLITE AND FRINK REFLECTORS, FRINK INDIRECT AND DIRECT INDIRECT REFLECTING CHANDELIERS, DESK AND TABLE LAMPS.

Also, "NOARK" NATIONAL ELECTRICAL CODE FUSE DEVICES, "NOARK" FUSE, SERVICE AND SUBWAY BOXES, "NOARK" SERVICE METER PROTECTIVE DEVICES, J-M FIBRE CONDUIT, Etc.

FACILITIES

We have a fully organized Engineering Department, including illuminating engineers and specialists, and are prepared to submit proposals for the most efficient and economical illumination of art galleries, libraries, armories, squash courts, schools, churches, gymnasiums, billiard tables, bowling alleys, public buildings, show windows, show cases, stores, hospitals, banks, insurance companies, railway stations, offices, and theatres; also, border and footlights, exit signs, etc.

FRINK AND J-M LINOLITE SYSTEMS OF ELECTRIC LIGHTING.

The J-M Systems consist of J-M Linolite Lamps placed end to end in Frink Reflectors. The lamps are about one foot long and one inch in diameter, and have a straight carbon or Tungsten filament extending the entire length of the tube.

SYSTEM OF STORE WINDOW LIGHTING.

ADVANTAGES

The tubular form of these lamps, together with the scientifically constructed reflectors, insures an even distribution of light over the entire area to be illuminated, thereby eliminating deep shadows. While the light produced by these systems is extremely powerful, it is soft in quality, and is the nearest approach to daylight known. There is an entire absence of glaring "spots" caused by ordinary bulb lamps. And as the source of illumination is hidden from view, there is no eye-strain.

These systems not only give more and better illumination than the ordinary systems, but are more economical, owing to the fact that fewer lamps are needed.

The terminals of J-M Linolite Lamps are formed by metal caps. The socket has a fixed contact at one end and a spring contact at the other, permitting the lamp to be removed or replaced instantly. As these contacts are protected by the reflector, the danger of fire from defective wiring and sockets is eliminated.

SYSTEM OF BANK LIGHTING.

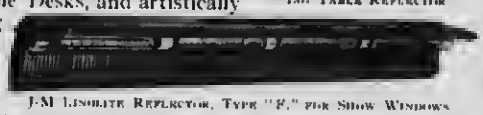
Frink and J-M Linolite Systems occupy less space in show cases and cabinets, book stacks, bank and insurance companies, squash courts, bowling alleys, billiard rooms, etc., than any other desirable form of illumination. The silver plate corrugated glass in the reflectors delivers 50 per cent. more light with the same current than any all-glass, unsilvered reflectors on the market. The silvering cannot be scratched or marred. Ample ventilation is provided for in the design of the reflectors, and there is no breakage from expansion or contraction.

SYSTEM OF ART GALLERY LIGHTING.

TYPES OF REFLECTORS.

Among the Frink Products, which have long been recognized as embodying the highest perfection in art, efficiency and quality, are Patent Approved Window Reflectors, Show-Case Reflectors, Mirror-Lined and Porcelain-Enamelled Steel Shades, Patent Portable Lamp Guards, Picture Reflectors, Cluster Reflectors, Reflectors for Bank Screens and Double Desks, and artistically designed Lighting Specialties in brass, bronze, and plain metal.

FRINK VENTILATED PORTABLE TABLE REFLECTOR



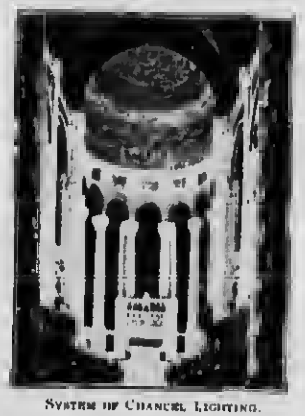
J-M LINOLITE REFLECTOR, TYPE "F," FOR SHOW WINDOWS

FRINK DIRECT-INDIRECT LIGHTING

This system of lighting with Tungsten lamps is the most modern method of lighting dry goods and department stores.

The framework of these electroliers conceals a powerful reflector, which distributes the light over the entire ceiling. There are no glaring spots directly above. The translucent bowl at the bottom diffuses a soft light, and, by revealing the light source, the hollow, unnatural appearance of indirect lighting is avoided.

Frink Semi-Indirect Electroliers are made square, round or octagonal, plain or ornamental in design, of brass or bronze, in any finish desired.



SYSTEM OF CHANCEL LIGHTING.

NORTHERN ELECTRIC COMPANY, LIMITED

Successors to Imperial Wire and Cable Co., Limited

MONTREAL	WINNIPEG	EDMONTON
HALIFAX	REGINA	VANCOUVER
TORONTO	CALGARY	VICTORIA

Correspondence previously addressed to Imperial Wire & Cable Co., Limited, at 511 C.P.R. Building, Toronto, and 602 Electric Railway Chambers, Winnipeg, should now be addressed to Northern Electric Company, Limited, Simcoe Street, Toronto, and 356 Henry Ave., Winnipeg.

PRODUCTS.

We have standardized three grades of Rubber Insulated Wire—Adanac Red Core, White and Black Core; Imperial Higrade Black Core; and "Adanac" 30% Para. These wires are made to exceed the requirements of the National Board of Fire Underwriters, and are used principally for wiring buildings.

"Adanac" Red Core, White and Black Core. The conductors are thoroughly tinned, and are covered with even thicknesses of rubber compound which is thoroughly cleansed. The wires are braided with cotton yarn, the braid being thoroughly saturated with a moisture and flame proof compound, and are smoothly and evenly finished. The combination of hard finish given these wires [illegible] perfectly adapted for use in conduit work, and makes them especially desirable for conduit wires.

"Imperial Higrade" [illegible] designed to meet the demand for a very high grade wire, to be used where a small [illegible] is required, and where the requirements of the customer do not justify the use of "Adanac" [illegible].

"Adanac" 30% Para Insulation [illegible] with the Rubber Covered Wire Engineers' Specification, and is the best compound [illegible]. This insulation is made in Black Core only.

All our Rubber Covered Wires are Code No. 18 B & S and larger are covered with a tape and single braid, and are suitable for inlined [illegible] work. Smaller sizes are supplied with either single or double braid as called for by the customer.

We also manufacture to Specifications Two and Three Conductor Paper and Triple Conductor Telephone Wires to meet the various Specifications of The Bell Telephone Company, Independent Telephone Companies, and Provincial Government Telephone Systems.

"Adanac" Incandescent Lamp Cord. The conductor is composed of fine copper wires stranded together, wound with cotton, insulated with rubber well [illegible] thick, and braided with either silk or cotton.

"Adanac" Elevator Light or Control Cable. Conductor is composed of 30 No. 30 B & S tinned copper wires wrapped with cotton, insulated with [illegible] thick and covered with glazed cotton braid. Conductors are stranded together, covered with an asbestos [illegible], and finished with a worsted braid.

"Adanac" Elevator Bell Cable. Conductor is composed of 10 No. 30 B & S tinned copper wires stranded together and covered with fine and coarse cotton in reverse directions, conductors are braided and [illegible] together, covered over all with white cotton braid, and finished with a coloured soft cotton braid.

"Wacco" Weatherproof Wire and Cable is made with either double or triple [illegible] and is [illegible] saturated with compound. It has a hard, smooth, highly polished finish.

"Wacco" Slow-Burning Weatherproof Wires and Cables are triple braided [illegible] and the two outer braids with a white fireproof compound [illegible] finish.

"Wacco" Slow-Burning Wire and Cable, formerly known as "Underwriters [illegible] saturated with a white fireproof compound. It has a smooth, highly polished [illegible] of cotton, all deteriorate in continued high temperature, it is especially suitable for [illegible] does not drip.

"Wacco" Weatherproof Iron Wire, double and triple braided, is extensively [illegible] work, and has the same insulation as the regular "Wacco" Weatherproof line wires. It [illegible] polish as all our other wires, and is put up for shipment in coils only, thoroughly wrapped with [illegible].

Annunciator Wire is insulated with two winds of cotton yarn applied in opposite [illegible] with our special wax compound and highly polished. Furnished in colours and styles as follows: White [illegible] brown, black, red-white, blue-white, green-white, brown-white, and blue-brown.

Weatherproof Annunciator Wire.—The same as above, saturated with weatherproof [illegible], furnished in black only.

Damp-proof Office Wire.—Insulated with two winds of cotton yarn applied in opposite directions, saturated with our regular black weatherproof compound, then braided and specially treated with wax. It is highly polished and will not collect dust. Office Wires are made in the combination colour red and white.

Our Bare Copper Wire is made in accordance with the most approved methods. It is drawn accurately to gauge, and is of high conductivity. We can furnish this in all sizes, either hard drawn or annealed, or to special specifications.

Trolley Wire, hard-drawn, is furnished in either of the two standard styles, round and grooved. Sizes 1 0 and 2 0 are put up in mile lengths; 3 0 and 4 0 in lengths of two thirds of a mile.

Stranded Bare Copper is furnished in standard or special number of strands, according to specifications. Concentric stranding is our standard, as it gives a smaller diameter of conductor for a given capacity.

Below is given a more complete list of the various wires and cables we manufacture:—

Annunciator Wire
Armature Wire
Asbestos Covered Wire
Automobile Wire

Bare Copper Wire.
Bell Cord.
Brass Wire.
Brewery Cord.
Bridle Wire

Cable Splicing Compound.
Cable Terminals
Canvasite Cord.
Car Wire
Copper Steel Wire
Counterweight Cord.

Deck Cable
Drop Wire

Electric Heater Cord.
Elevator Cable

Fixture Wire
Flameproof Wire and Cable

Lamp Cord
Lead Covered Cable.

Magnet Wire
Marine Wire.
Motor Boat Wire

Office Wire.

Packinghouse Cord.
Paper Insulated Power Cable
Paper Insulated Telephone Cable.
Paper Tape
Portable Lamp Cord.
Pothead Compound
Pothead Wire

Rubber Covered Cable
Rubber Covered Wire

Show Window Cord
Signal Wire
Slow Burning Wire
Slow Burning Weatherproof Wire.
Switchboard Cable.
Switchboard Cords
Switchboard Wire

Telegraph Cable
Telephone Cords.
Telephone Wires and Cables
Theatre Cable
Trolley Wire

Weatherproof Aluminum Wire
Weatherproof Copper Wire
Weatherproof Iron Wire

Etc., etc., etc.

CATALOGUE.

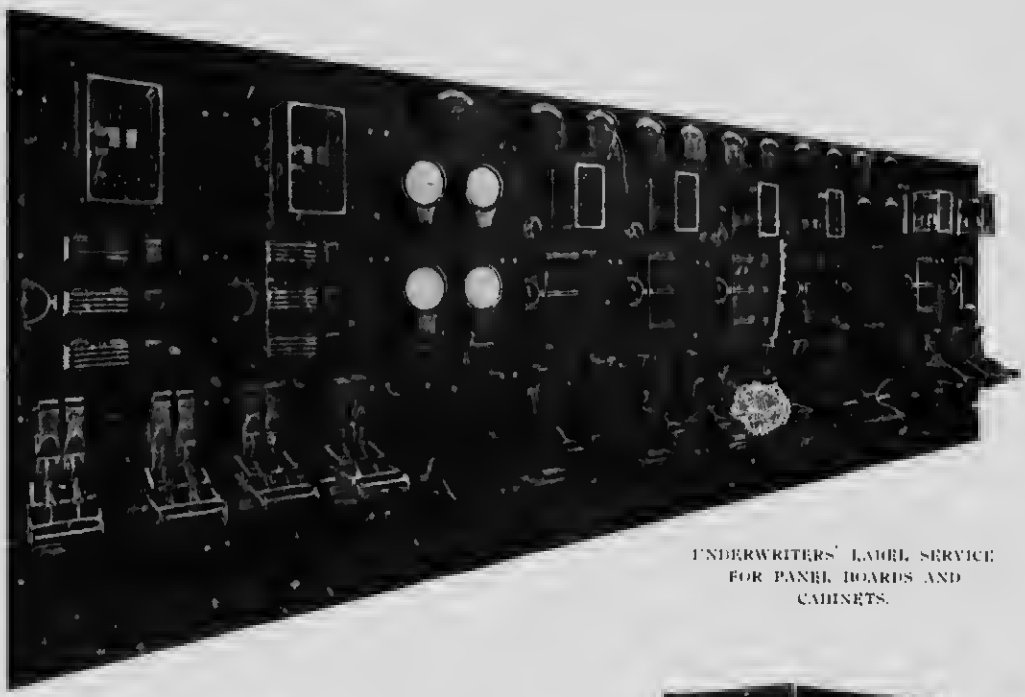
On request we will be glad to send Catalogue or Specifications covering these lines in detail.

FRANK ADAM ELECTRIC CO.

904 914 PINE ST.,
ST. LOUIS, MO., U.S.A.

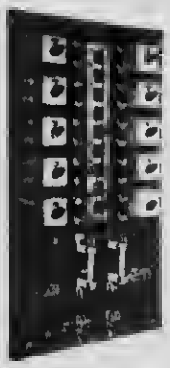
PRODUCTS.

- ELECTRIC LIGHT AND POWER SWITCHBOARDS.
- DISTRIBUTING AND FEEDER PANEL BOARDS.
- METER CONTROL PANEL BOARDS.
- KNIFE SWITCHES, FRONT AND BACK CONNECTED.
- BOXES, FLOOR, WALL, UNDERGROUND AND OVERHEAD SERVICE.



UNDERWRITERS' LABEL SERVICE FOR PANEL BOARDS AND CABINETS.

GENERAL



PANEL BOARDS AND STEEL CABINETS. METER CONTROL PANELS AND SWITCHBOARDS.

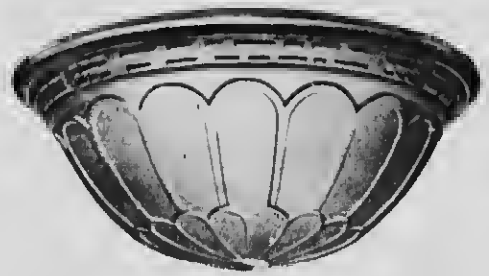
Made for voltages of 125, 125 250, and 250 volts, 2 and 3 wire, without branch switches and with either knife, push button or snap switches on branches, and cable terminals, fuses, or knife switch on bus bar. With fuse terminals for Edison Plug or New Code Cartridge enclosed fuses. The Standard Panels as per catalogue, or special panels on specifications. Also panels with through feed and convertible from 3 to 2 wire feeder and METER CONTROL PANELS.

SEND US YOUR SPECIFICATIONS

CATALOGUES. Catalogues and other descriptive matter, illustrating our material, will be mailed on request. Write for Catalogue No. 21, on Panel Boards and Steel Cabinets, Switchboards, etc. Send for Bulletin No. 19, listing our line of Type A, B, and F Knife Switches.

THE JEFFERSON GLASS COMPANY, LIMITED

TORONTO, CANADA.



No. 6052.

18 IN. MOONSTONE SEMI INDIRECT BOWL
Finished in White, Old Ivory, Antique Bronze, Verde Green, Pink and Blue

GENERAL. In this age, where efficiency is the keynote of all successful attainments, architects, builders and owners of buildings now look upon efficient lighting as an investment; not an expense, as heretofore.

To keep abreast of the times, we have spared no pains or expense to produce a glass that will give maximum lighting efficiency embodied with designs to meet the requirements of every service. The result of our efforts is MOONSTONE Glass, and we recommend it for all installations where good lighting is wanted. It is the BEST we make, and we make every kind.

MOONSTONE is strictly a CANADIAN PRODUCTION, made by CANADIAN LABOUR for CANADIANS.

MOONSTONE GRECIAN LANTERNS

No. 9050	8 inch diameter
No. 9052	10 inch diameter
No. 9054	12 inch diameter
No. 9056	14 inch diameter
No. 9058	16 inch diameter

MOONSTONE EXTENSIVE REFLECTORS

No. 4051	40 watt
No. 4053	60 watt
No. 4055	100 watt
No. 4056	150 watt

MOONSTONE INTENSIVE REFLECTORS

No. 9030	25 watt
No. 9032	40 watt
No. 9034	60 watt
No. 9036	100 watt
No. 9038	150 watt
No. 9040	250 watt

MOONSTONE CANTALOUPE BALLS

No. 9050	6 inch diameter
No. 9052	8 inch diameter
No. 9054	10 inch diameter
No. 9056	12 inch diameter
No. 9058	14 inch diameter

CO-OPERATION. USE our Engineering Department in laying out your lighting plans.

L. H. GAUDRY & CO., LIMITED

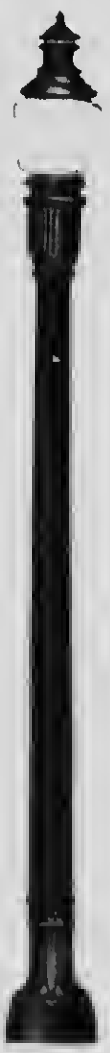
76 St. Peter Street,
QUEBEC.

PRODUCTS. "MORRIS" STREET LIGHTING POLES. Modern ideas in street lighting.

QUALITY. These poles are manufactured with the best grey iron, to a very fine finish, and represent the most modern ideas in street lighting.

No. 41010

Height from ground to bottom of lower globes, 12 ft. Height from ground to top of upper globes, 15 ft. Base, 18 ins square. Spread of arms, 4 ft. Price $60 00
Globes, Sockets, Lamps or wiring not included



No. 41008

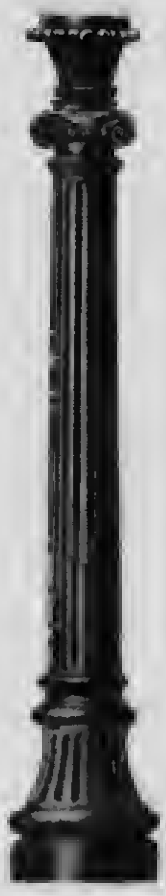
Height from ground line to centre of globe, 14 ft. 6 ins. Base, 6 18 in. diameter at ground line. Price $20 00
Globe, Lamp or wiring not included

No. 41006

Height from ground to top of globe, 9 ft. 6 ins. Base, 10 ins. diameter. Price $15 00
Lamp, Sockets or wiring not included

No. 41008

Height from ground to bottom of globes, 11 ft. Height from ground to top of pole, 15 ft. Base, 18 ins. diameter. Spread of arms, 5 ft. Price $30 00
Globes, Sockets, Lamps or wiring not included



No. 37929

Height from ground line to top of globe 8 ft. Base 10 ins. diameter at ground line. Price $10 00
Globe, Socket, Lamp or wiring not included

SPECIAL DESIGNS. Special designs submitted on request.

NOTE. Poles supplied with or without ground extensions.

INFORMATION. Send for descriptive bulletin and prices.

CANADIAN INDEPENDENT TELEPHONE CO., LIMITED

20 DUNCAN STREET,
TORONTO, ONT.

PRODUCT. We manufacture TELEPHONES both Manual and Automatic for all kinds of service for the city, the town, the rural lines or for private systems. We here call special attention to the PRESTO-PHONE, an Automatic Telephone System for Private Inside Service a Central Station Intercommunicating System.

DESCRIPTION. The Presto-Phone is an Automatic Telephone System by which any number of telephones up to one hundred may be installed in a building or series of buildings, and private communication had from one telephone to any of the others by means of an automatic switchboard, requiring the services of no operator. This switchboard is compact in design and may be installed at any convenient place in a building. It is sightly enough to be an ornament in any office It will not get out of order and can be maintained at a very small annual cost.

The Presto-Phone is a central energy system, there being no batteries in the telephones. The necessary battery current for signalling and talking is supplied by a storage battery of small capacity.

SIMPLICITY OF WIRING. There are but a single pair of wires from each telephone to the switchboard. They can be installed by anyone having even a limited knowledge of telephone matters.

PRESTO PHONE CALL SENDER FOR USE WITH AN ORDINARY DESK TELEPHONE

PRESTO PHONE SWITCHBOARD 25 LINE CAPACITY

WALL PRESTO PHONE

IMPORTANT FEATURES.

Compactness of the switchboard and its sightly appearance.

Compactness of the telephone and the clever method devised for making calls automatically.

Simplicity of operation, both of the telephone and the switchboard

Accuracy of service. Automatic switches, which never mad mistakes, never get tired, always give undivided attention and work perfectly all the time night, holidays and Sundays.

Absolutely secret service no one to listen, no one able to come in on the line when you are talking, unless called.

Quick service connection in three seconds and instant release.

The Presto Phone system gives an instantaneous signal telling you if the telephone you are calling is busy.

The Presto Phone is so designed that you need install at first only the number of telephones and switches required at that time. As your business grows, you may increase the number at a nominal expense.

The first cost of a Presto-Phone is not much more than the first cost of an ordinary intercommunicating telephone system, and the Presto Phone advantages are inestimable.

The first cost of a Presto Phone system is practically the only cost, as the annual cost of maintenance will be very small no operator to pay, no plugs and cords to wear out or expensive cables to become damaged.

INVITATION. We have a Presto-Phone system in operation in our factory, and we extend a cordial invitation to any and all who are interested to call and have the system thoroughly demonstrated. This is the best way to secure the full appreciation of the advantages presented by the Presto-Phone. To those who cannot conveniently call, we will gladly send further particulars and estimates upon request.

THE THORNTON-SMITH COMPANY

INTERIOR DECORATORS,

11 KING STREET WEST,

TORONTO.

Three Adams Fixtures, in carved wood, gilded, the flat spaces being filled with small mirrors, wired with sockets for either candles or bulbs

PRODUCTS. An interesting line of ELECTRIC FIXTURES, designed in the different periods, from the Classic to the Modern. The workmanship and finish of the very best. A special feature is made of the MERCURIAL GILT finish, Crystal and combinations of Wood and Metal, and Wood and Mirrors. SHADES designed in keeping with the fixtures and room.

FACILITIES, MODELS, ETC. Special designs to conform to any style of Exterior or Interior architecture. We prepare details and models to enable the architect intelligently to comprehend all the salient features of the design, and otherwise assist him in supplying all necessary data to execute the work. Orders promptly executed

ADAPTABILITY. We carry a line covering everything requisite for the complete equipment of Private Residences, Public Buildings, Churches, Hotels, Clubs, Yachts, Etc.

CO-OPERATION. We will submit designs and estimates for work to satisfy requirements of every nature.

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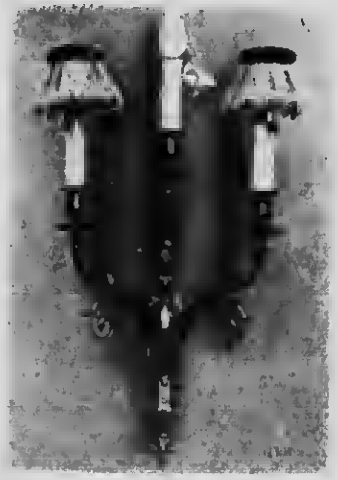
LOUIS XV



LOUIS XVI — THE PHYNE BOY DESIGN.

LOUIS XVI

These fixtures are hand chiselled, perfect reproductions of the periods, of exquisite workmanship, and finished with what is known in France as the Mercurial gilt finish

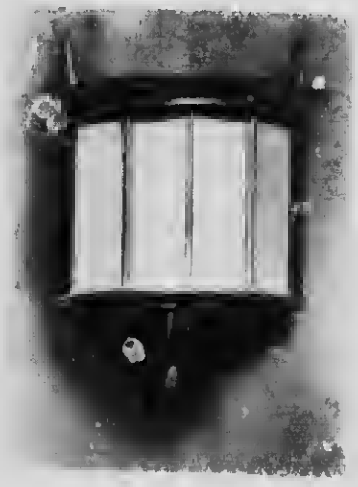
PERIOD DESIGNS

We make a special feature of faithfully reproducing designs of the different periods: Egyptian, Greek, Roman, Gothic, Italian and French Renaissance, Henry II., Louis XIII., Louis XIV., Louis XV., Louis XVI., Georgian, Adam, and adaptations from the Dutch.

CORRESPONDENCE.

We will be glad to receive inquiries from architects, and in response will be happy to place our services at their disposal.

AN OAK AND CATHEDRAL GLASS HALL FIXTURE MADE IN ANY SIZE.



A MAHOGANY AND CATHEDRAL GLASS HALL FIXTURE MADE IN ANY SIZE.

The above cuts show two examples of Brackets peculiarly appropriate for halls. The first one is shown in Oak, the second in Mahogany. These are also successfully used in white enamel. The light is behind the cathedral glass, which opens with a hinge, allowing for the changing of bulbs and dusting.

These fixtures are also made in Copper, Bronze, Iron and Polished Steel, the colour of the glass being governed by the nature of the metal.

CONTINUED ON NEXT PAGE

These cuts show an example of an Adams Ceiling Fixture, and Bracket to match. The lines are very true, and the workmanship exquisite.

Fixtures are wired complete with sockets to take the "Huntalite" Candle Lamps. For further particulars of the "Huntalite" Candle see matter advertised by the Hunter Electric Candle Company. Other makes of Electric Candles can be used.

These Fixtures are made in Brass, Gun Metal, Polished Steel and Mercurial Gilt.

The price is governed by the amount of hand work, the fixtures being inexpensive when cast and not chased by hand, and give a very satisfactory effect.

Quite a large variety of shades can be used on these fixtures, giving a particularly pleasing and artistic effect. The shades are fitted with special spring over the apex of the candle, and are made in Silk, Coloured Porcelain, Translucent Glass Mosaic, Crystal Beads; also Transparent Enamels set in metal.

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

TORONTO. MONTREAL. WINNIPEG. VANCOUVER.

SANITARY PLUMBING SPECIALTIES.

PRODUCTS. J-M WASHERLESS FAUCET, J-M SECTIONAL UNDERGROUND CONDUIT.

Also, J-M FLUSHING VALVES, J-M VITREOUS CHINA COMBINATION, J-M DIRIGO SOLDERLESS COPPER FLOATS, J-M SANITARY CLOSET FITTINGS, BATHS, SHOWERS, LAVATORIES, URINALS, DRINKING FOUNTAINS, SINKS, LAUNDRY TRAYS, FITTINGS AND FIXTURES for every purpose.

For complete List of J-M Building Materials, see our Catalogue in Roofing Section.

GENERAL. J-M Sanitary Plumbing Specialties embrace the entire fixture line, and are unique both in design and construction. They are built to meet the requirements of each specific building. Exposed metal parts have been reduced to a minimum, and the usual fouling space has been eliminated.

J-M WASHERLESS FAUCET. *Construction.*—Made from highest grade materials by experienced workmen; the only successful faucet on the market without seat washer. The seating consists of a *conical valve* or "jumper," which bears directly on a *spherical seating*. No washer to wear out or cause troublesome and expensive leaks.

SECTIONAL VIEW OF J-M WASHERLESS FAUCET.

In this form of seating the ideal *line-contact* is obtained. A slight turn shuts the water dead off and it *stays* shut off. It cannot leak, because contact between the surface of the spherical bearing and the hollow enveloping cone or jumper is always a true circle. The jumper *always* finds a true seat, even when the top action of the cock is not axially true with the body.

The J-M Faucet shuts off at a touch. It is not necessary to jam the valve down hard, as with the ordinary faucet. There is no water hammer, no whistling, no splashing, no sticking of the seat. It operates on high pressure as well as on low, and is equally efficient on hot or cold water lines.

This valve cannot "cut" or otherwise get out of order. Owing to the spherical form of the seat, solid particles rarely find a place for lodgment, and, therefore, cannot become jammed between valve and seat. The two operating parts form a separate unit in themselves, and can be easily and quickly removed.

Advantages.—The greatest advantage of the J-M Washerless Faucet is the water saving effected by its use.

It is a generally accepted idea that water leaks are too insignificant to deserve attention. Yet the annual water loss through leaky faucets is calculated at many millions of dollars.

Water under 30 pounds pressure, flowing through an opening ⅛ in. in diameter, will, on meter-rate basis, amount to $11.08 annually.

This loss varies according to the size of the drip or leak, the amount of pressure, and the cost of water in different localities, but in no case is it so slight as to be a negligible quantity.

J-M Washerless Faucet puts an end for all time to loss from water waste through leakage. It reduces the bill of the big consumer who is charged by a water meter. And by conserving water in a community it tends to reduce the water cost per capita.

All parts of this faucet are interchangeable. It meets all requirements in the handling of oils, chemicals and other liquids. And in localities where the water contains salts which set up galvanic action on coming in contact with different metals or alloys, the seating and valve will be furnished in special alloys, which will remain unimpaired.

The J-M Washerless Faucet is not a theory nor an experiment, but a practical device which has withstood the test of actual service. Thousands have been in successful use for years. It has been adopted by the Metropolitan Water Board of London and other large cities, and is pronounced by prominent engineers, who have subjected it to tests of the most severe character, to be the most perfect faucet on the market.

UNION.

Every faucet is thoroughly tested before leaving our works, and guaranteed free from defects.

Guarantee.—The seating in every J-M Washerless Faucet is guaranteed for ten years, and new seatings will be furnished free during that time if it fails to give satisfactory service in ordinary use.

J-M SECTIONAL UNDERGROUND CONDUIT. Has many advantages over ordinary conduit for carrying pipes containing steam, water, gas, brine, ammonia or any other liquid underground. It will carry steam 1,000 feet with practically no loss. Saves 90 per cent. of the heat lost in transmission through unprotected or poorly insulated pipes. It is absolutely water tight. Acids, gases, or the action of the earth do not affect it. Can be easily opened after installation. Costs nothing for maintenance and can be taken up and relaid without injury.

SUPPORTING TEE.

THE STANDARD IDEAL COMPANY, LIMITED

GENERAL OFFICES AND FACTORIES:
PORT HOPE, ONTARIO, CANADA.

MONTREAL:
42-44 Beaver Hall Hill.

TORONTO:
119 King Street East.

WINNIPEG:
76-82 Lombard Street.

VANCOUVER:
410 Carter Cotten Bldg.

MANUFACTURERS OF
HIGH-GRADE PLUMBING FIXTURES.

AN ALEXANDRA WARE BATHROOM

PRODUCTS.

CAST-IRON PORCELAIN ENAMELLED.

BATH TUBS.
SITZ BATHS.
FOOT BATHS.
CHILD'S BATHS.
RECEPTORS.
BIDETS.
MANICURE AND
TOILET TABLES.

DRINKING FOUNTAINS.
KITCHEN SINKS.
PANTRY SINKS.
SLOP SINKS.
WASH SINKS.
LAUNDRY TRAYS.

LAVATORIES.
SECTIONAL LAVATORIES.
BARBERS' LAVATORIES.
LAVATORY BATTERIES.
CLOSETS.
RANGE CLOSETS.
URINALS.
TANKS, ETC.

SPECIALTIES OF VARIOUS KINDS,
INCLUDING SPACE-SAVING OUTFITS, INCINERATORS, ETC.

THE LARGEST EXCLUSIVE CAST IRON ENAMELLING WORKS UNDER THE BRITISH FLAG

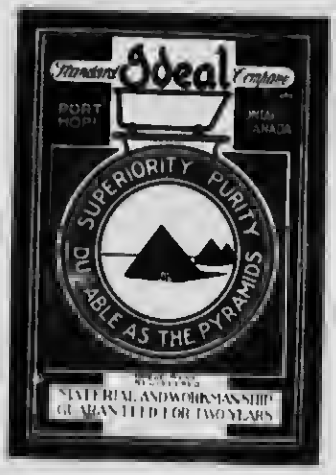
CONTINUED ON NEXT PAGE

GUARANTEE LABELS.

IDEAL
"PURPLE AND GOLD"
GUARANTEE LABEL.

IDEAL
"GREEN AND GOLD"
GUARANTEE LABEL.

IDEAL
"BLUE AND RED"
GUARANTEE LABEL.



"PURPLE AND GOLD" LABEL. All "Alexandra Ware" bears this label. It is indicative of superior features in the construction of Sanitary Enamelled Iron Ware never before equalled by any manufacturer. It is distinctively a Superior Quality Line, not sold on price, but bearing all the attributes usually considered when selecting material for a finely appointed home.

"GREEN AND GOLD" LABEL. All of our standard line bears this label. Its presence indicates that the very best materials and workmanship were employed in the manufacture, and guarantees such fixtures against all manufacturing defects for a period of five years.

"BLUE AND RED" LABEL. Our medium-priced Bath Tubs bear this label. These Baths are covered with our FIRST-GRADE Enamel, and differ from the Green and Gold Label "Ware only in the matter of design. They supply the demand for Baths in the moderate-priced home, where comfort is the chief consideration, rather than a combination of comfort and elegance of design.

ABOUT OUR GUARANTEE. The length of our Guarantee should not be accepted as an indication of the life of such fixtures. Our experience has demonstrated the fact that all imperfect or mechanical defects become visible almost immediately, and that any fixture remaining in good condition during the period of our guarantee will remain so almost indefinitely.

As an extra precaution, all of our fixtures are subjected to a severe test and thoroughly "seasoned" before shipment.

NOTE. We respectfully suggest to the architect to insist that contractors or plumbers allow our guarantee labels to remain on each fixture until he can assure himself that no substitution has been practiced.

The large variety of Plumbing Fixtures in the STANDARD IDEAL line enables the architect to select suitable fixtures to conform to the requirements of the moderate-priced home or costly mansion, office building, apartment or hotel.

CLUFF BROTHERS

85-87 Church Street,
TORONTO, ONT.

Plate 1026 C

Plate 1026 C—Cluff's "Clenso" Vitreous-ware side inlet syphon jet water closet with siphonic trap and outlet, with white acid proof flexible seal with nickel plated brass, cast brass concealed hat hinges, style "A" pedestal bottom—nickel plated. Cluff oil regulated flushing valve—brass waste pipe—heavy cast brass floor flange, with gasket and china bolt caps complete. Price ... each $[illegible]

THE "CLENSO" C 1026

CLENSO CLOSETS

The "Clenso" Closets are installed in the Canadian Pacific Railway's Office Building, Toronto, having been selected because of their meritorious features.

The "Clenso" Closet is especially adapted for use in all public buildings, hospitals, railway and public comfort stations without the use of a storage tank. For such installation the service pipe, from the water works street main to the building line, must be of ample size to deliver sufficient quantity of water to supply an one and one fourth inch or an one and one half inch pipe from the building line to the valves according to distance and pressure.

DIRECTIONS FOR INSTALLATION OF VALVE FOR DIRECT CITY PRESSURE

Where the supply from the street main is not of sufficient size to operate upon the direct city pressure, a storage tank may be used. It must be placed at least ten feet above the highest closet, and be of such capacity that a full pressure will be maintained at all times upon the supply to the valve. An one and one half inch or two inch supply from storage tank must be used, according to the number of closets, and branching one and one fourth inch to valve.

FOR TANK PRESSURE

We invite correspondence in regard to installation of closets, in all classes of buildings, under all conditions. Inquiries will receive immediate attention.

The slow-closing mechanism consists of a jet in inclosed in an air tight cylinder filled with oil, with which the water does not come in contact, hence the valve is not affected by sand, mud, or any foreign substance. When operated the oil is forced through a small opening from one side of the piston to the other, and the valve can only close as the oil passes back. The duration of the flush is determined by the size of the opening through which the oil passes and is regulated by a small screw on the outside of the valve. The highest grade of mineral oil is used, which does not change its consistency under any condition, nor can it escape from the chamber, consequently it will not need replenishing.

MECHANISM

Plate 1099 C

THE ADVANTAGES OF THIS VALVE

- Easily operated
- Noiseless in operation, Positive Action Hammer
- Economical in use of water
- Gives ample refill to Syphon Jet Closets
- Discharges the same amount of water at each flush
- Entire working parts may be removed instantly without disconnecting from supply pipe or bowl.
- Volume regulator and shut-off conveniently located at inlet of valve operated by loose key.
- When supply of water is sufficient, will work under any pressure of five pounds or more.

GUARANTEE

ALL CLUFF "OIL-REGULATED" FLUSHING VALVES are guaranteed to give satisfaction, when properly installed according to our directions.

CONTINUED ON NEXT PAGE

THE "COMET" C 1040

The Cluff "Comet" Extra Heavy Vitroware Syphon Wall Water Closet, polished oak saddle seat, with nickel plated heavy cast brass hinges, style "S" push button, Cluff "Oil regulated" flushing valve (Brook's patent) concealed behind partition, heavy special cast brass wall flange, with gasket, and nickel plated bolts

Price, as described ... $75.00

The above type of closet is especially adapted for public institutions, office buildings, schools, railway stations, etc.

The "Comet" Closet is heavily constructed of solid vitreous ware and has a large opening in trap which is 4 inches in diameter its entire length, and is therefore not easily stopped up. It has a powerful syphonic action and large water area, and is easily operated by simply pushing the button and releasing the same. A great saving of water is effected by the use of the Cluff "Oil regulated" flushing valve, as only sufficient water is permitted to pass through the valve to give perfect flush, using but half the quantity of water required by the ordinary flush box.

Our "Vitroware" is absolutely non-absorbent and is positively guaranteed against crazing.

To specify, mention catalogue name and number.

THE "ARCHER" C 1015.

The "Archer" Vitroware Side Inlet Syphon Jet Closet, with white acid-proof, open front and back "Hygienic" seat with rover, with nickel-plated heavy cast brass hinges, style "A" push button nickel-plated Cluff "oil-regulated" flushing valve (Brook's Patent), heavy cast brass floor flange, with gasket, and china bolt caps.

The "Archer" possesses more sanitary features than any other closet made. It is 14½ inches high, which is the proper height for hygienic reasons; it is elliptical in shape, with extended front and recess back, and has been endorsed by sanitary engineers, architects and physicians for its obvious sanitary advantages.

Price as described ... $75.00

THE "MUNICIPAL" C 1035

The Cluff "Municipal" Vitroware Syphon Water Closet, with concealed jets, polished oak seat, with heavy reinforced ring and bar hinge style "G" automatic seat-operating Cluff "oil-regulated" flushing valve (Brook's patent) with heavy galvanized hood, heavy cast brass floor flange, with gasket and nickel-plated bolts.

Our "Rapidus" bowls are especially adapted for all places requiring an automatic seat action closet. The valve is covered with a heavy galvanized iron shield which prevents the user from tampering with the working parts.

Can also be furnished with valve concealed behind wall.

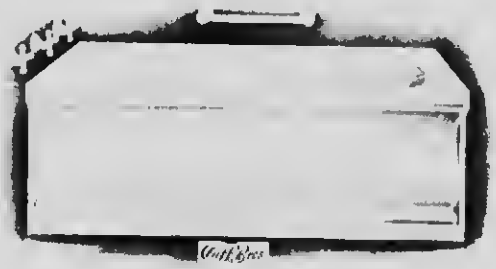
Price as described ... $70.00

CONTINUED ON NEXT PAGE

THE "VICTORIA" C 3005.

The Cluff "Victoria" Paragon Porcelain Corner Bath, with curved front and end and moulded base, made to tile in at back and right hand corner, glazed white inside and outside; extra heavy nickel-plated brass compression combination supply and waste fixture with ½-inch valves and supply pipes, with all-china handles.

Size of Tub (length outside).	5 ft.	5½ ft.	6 ft.
Price as described, "A" quality .	$152.50	$164.50	$194.00
Price as described, "B" quality	121.25	130.75	154.00



THE "STATLER" C 3015.

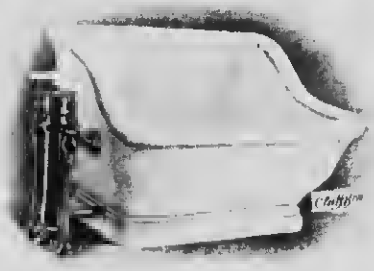
The Cluff "Statler" Paragon Porcelain Recess Bath, with curved front and moulded base, glazed white inside and outside, to tile in back and side walls; with ½-inch "Secreto" combination supply and waste fixture, concealed behind partition, and with exposed all-china handles and china wall escutcheons.

Size of Tub (length outside).	5 ft.	5½ ft.	6 ft.
Price as described, "A" quality..	$157.50	$169.00	$198.50
Price as described, "B" quality..	125.00	134.50	157.50

THE "WINNEMAC" C 3020.

The Cluff "Winnemac" Paragon Porcelain Roll Rim Bath, with curved front and sides, and moulded base, glazed white inside and outside; with extra heavy nickel-plated brass compression top nozzle supply and waste fixture, with ½-inch valves and supply pipes, with all-china handles.

Size of Tub (length outside).	4½ ft.	4 ft. 10 in	5 ft 4 in.	5 ft 10 in
Price as described, "A" quality	$143.50	$150.00	$160.00	$174.75
Price as described, "B" quality	114.25	119.50	127.00	140.00



THE "NAVARRE" 3025.

The Cluff "Navarre" Paragon Porcelain Roll Rim Seat Bath, with curved front and sides, and moulded base, glazed inside and outside; with extra heavy nickel-plated brass compression combination supply and waste fixture, with ½-inch valves and supply pipes, and all-china handles.

	"A" quality.	"B" quality.
Price as described	$101.50	$81.00

Dimensions: Outside length, 30 inches; Outside width, 27 inches.

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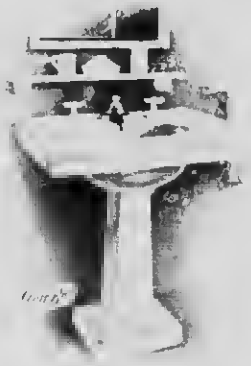
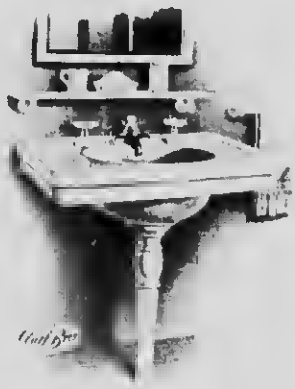


THE "ARDMORE" C 2035.

The Cluff "Ardmore" Extra Heavy Vitroware Lavatory, with hooded overflow, "Colonial Design" with Vitroware No. 10 pedestal, nickel-plated brass "Triad" combination supply and pop-up waste fixture, with all-china handles and china escutcheons; nickel-plated brass No. 1 supply pipes to wall, with compression controlling valves, 1¼-inch nickel-plated brass "Niagara" trap.

Price as described:

Dimensions, 26 inch x 22 inch	$64 75
Dimensions, 28 inch x 22 inch	68 00
Dimensions, 30 inch x 24 inch	71 75



THE "ACHILLES" C 2030.

The Cluff "Achilles" Extra Heavy Vitroware Lavatory, with hooded overflow, "Colonial Design" with Vitroware standard, nickel-plated brass "Triad" combination supply and pop-up waste fixture, with all-china handles and china escutcheons, nickel-plated brass No. 1 supply pipes to wall, with compression controlling valves, 1¼-inch nickel-plated brass "Niagara" trap.

Price as described:

Dimensions, 26 inch x 22 inch	$50 75
Dimensions, 28 inch x 22 inch	61 00
Dimensions, 30 inch x 24 inch	64 50

THE "ARLINGTON" C 2046.

The Cluff "Arlington" Extra Heavy Vitroware Corner Lavatory, "Serpentine Design," with 6-inch integral back, with hooded overflow and Vitroware standard; nickel-plated quick-opening compression basin faucets, with china handles, inbevel; Cluff nickel-plated lift waste, with china knob; nickel-plated brass No. 1 supply pipes to wall, with compression controlling valves; 1¼-inch nickel-plated brass "Niagara" trap.

Price as described:

Dimensions, 19½ inch x 19½ inch	$52 50
Dimensions, 24 inch x 24 inch	67 50

THE "ANNEX" C 2055.

The Cluff "Annex" Extra Heavy Vitroware Lavatory, with 6 inch integral back, with hooded overflow and Vitroware standard, nickel-plated quick-opening compression basin faucets, with all-china handles, inbevel. Cluff nickel-plated lift waste, with china knob; nickel-plated brass No. 1 supply pipes to wall, with compression controlling valves, 1¼-inch nickel-plated brass "Niagara" trap.

Price as described:

Dimensions, 20 inch x 18 inch	$29 25
Dimensions, 24 inch x 20 inch	47 50

THE EMPIRE MFG. CO., LIMITED

LONDON, CANADA.

HURONIC PLATE A 12 B.

OLYMPIC PLATE A 15 C.

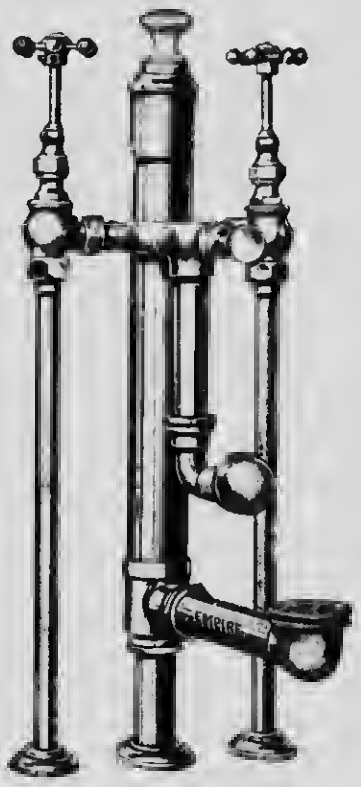
We illustrate above two of our most popular closet combinations. The Huronic, Plate A 12 B, is a quarter-cut oak outfit, with piano polish finish and extra large tank, insuring a good flush. The Olympic, Plate A 15 C, is a vitreous china tank, with a mahogany open back and front seat, with piano polish finish. The lower cut shows the construction of Empire Tanks and Seats. The tongue and groove with wooden dowels constitute what is known as the Bull Dog joint, and is a feature not found in tanks of any other make. We carry a stock of tanks and seats in all standard finishes, and, if necessary, can match perfectly the woodwork of any room if a sample is supplied us.

PATENTED IN CANADA AND U.S.

CONTINUED ON NEXT PAGE

THE EMPIRE MFG. CO., LIMITED

LONDON, CANADA.



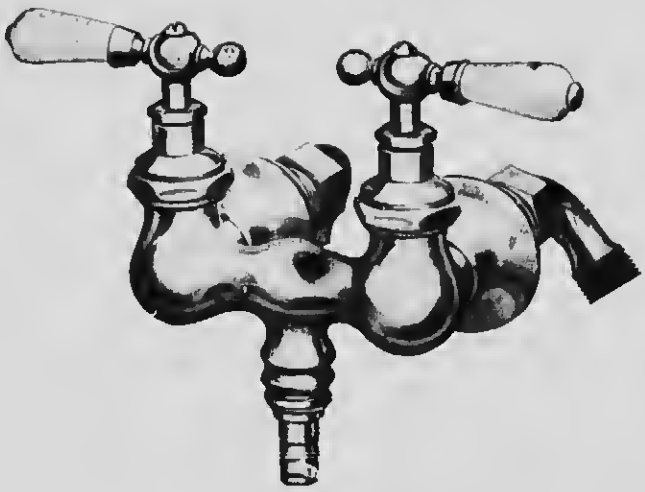
Too much attention cannot be paid to Bath and Lavatory Fittings.

In specifying the make of Bath or Lavatory, the make of fittings should also be specified.

It is most annoying to see a costly and well designed bath fitted with shoddy fittings, which have had to be forced into position.

We manufacture fittings for all standard makes of Baths and Lavatories. They are all made with adjustments where necessary, and their design and finish are second to none.

To insure perfect satisfaction, specify EMPIRE Valves. They are all manufactured from ingot made under chemical analysis and subjected to a hydraulic pressure test. The threads are uniform and made exactly to standards, while the greatest care is taken to procure a nickel deposit of the brightest quality and which will last a lifetime.



The following are a few reasons why EMPIRE quick-pression work is the best.

1st. Quarter-turn of the handle allows full half-inch waterway

2nd. Every bibb and cock is provided with a locknut, allowing only quarter turn.

3rd. Stem seats are of special white cotton fibre of extra wearing quality.

4th. Beauty of design and perfection of finish.

5th. Thorough test and unconditional guarantee.

GEO. CARPENTER

SANITARY SPECIALTIES, Etc.

OFFICE AND SHOW-ROOM: 314 UNIVERSITY STREET,

MONTREAL.

THE "DUAL" COMPRESSION MIXING VALVE.	A simple and thoroughly efficient ANTI SCALDING COMPRESSION MIXING VALVE, made in various forms and sizes for use in PUBLIC BATHS, HOSPITALS, ASYLUMS, TURKISH BATHS, HOTELS, PRIVATE DWELLINGS, etc. Also other high-grade Plumbing Specialties.
X. L. PORCELAIN BATHROOM FURNITURE.	(Chairs, Stools, Mirrors, Medicine Cabinets, Closet Seats, etc.) A THOROUGHLY HYGIENIC Enamelled Finish, which is absolutely DAMP AND ACID PROOF. WILL NOT STAIN, CRACK, PEEL OR CHIP.
ELECTRO-COPPERED MIRRORS.	For all purposes. 25% more brilliant than ordinary silvered plate and GUARANTEED IMPERVIOUS TO DAMP AND HEAT. Separate or in X. L. Porcelain Frames.
ENAMELLED FIRECLAY WARE.	A full range of Patterns in high-grade BATHS, URINALS, CLOSETS, etc. SPECIALTIES in School, Hotel, Hospital and Asylum appliances.
SANITARY EARTHENWARE.	A complete range of appliances suitable for all purposes.
FIREPLACES. THE "TILT" FIRE.	Ensures a BRIGHT RED FIRE in a few minutes. When lighting fire you have only to tilt up the fire basket for TEN MINUTES, or, after having fresh coal on, for TWO OR THREE minutes to get a brilliant fire. Then lower basket and it will burn BRIGHTLY but SLOWLY for MANY HOURS. No other Hearth Fire has such advantages. Patterns for use with Brick, Tile, Marble and other finishes. Being COMPLETE IN ITSELF, there is NO POSSIBILITY OF ERROR in fixing. THE CLEANEST OPEN FIRE EXTANT.
DOOR FURNITURE, Etc.	Specialties in DOOR Furniture and Architectural Metalwork for PUBLIC BUILDINGS, CHURCHES, HOTELS, HOSPITALS, ASYLUMS, ETC. EXCLUSIVE DESIGNS FOR HIGH-GRADE DOMESTIC WORK.
LOCKS, Etc.	INDICATING Hotel Locks, Asylum and Prison Locks, Emergency Exit Bolts, Ball-bearing Axle Pulleys, Casement Stays and Fasteners, etc.
HINGES.	Ball-bearing and Special Anti-friction Hinges for general use. Patterns for use on heavy doors.

See also advertisement on page 9.

NATIONAL EQUIPMENT CO., LIMITED

263 SORAUREN AVENUE, TORONTO, ONT.

"PEERLESS" WATER SERVICE SYSTEMS

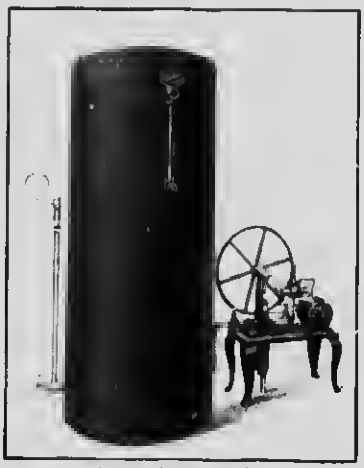
USE AND SCOPE. An ample water service for suburban homes or institutions is assured through the use of one of our many types of "Peerless" Water Systems, which will supply water at high pressure at any height or distance, to fixtures, lawns, stables, greenhouses, etc., and for fire protection.

SPACE REQUIRED. The ordinary installation requires little space and can readily be placed in the basement, where it will supply cool water and at the same time be protected from frost.

CAPACITIES. These systems are supplied to fulfil requirements from those of the smallest cottage to that of a town of 10,000 population. "Peerless" Tanks are made in capacities ranging from 150 gals. to 18,000 gals., and are guaranteed to be absolutely air tight at a pressure of 125 lbs. Tanks of this character require special machinery for their manufacture. If a pneumatic tank leaks air even in the smallest degree its usefulness very soon is gone.

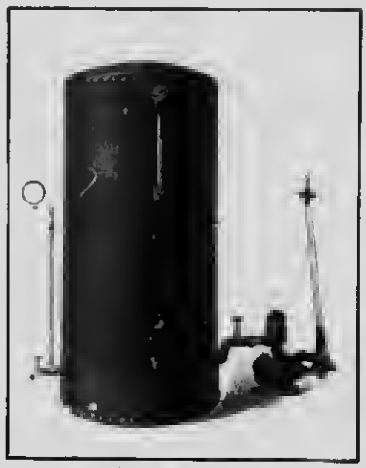
MOTIVE POWER. Pumps may be operated by hand, gasoline engine, electric motor, hydraulic ram, hot air engine, windmill, etc.

EXPERT SERVICES. Our engineering staff is at your service to determine the capacity and kind of system that will best meet your requirements.



401 SERIES—AUTOMATIC ELECTRIC.
125 Gallons per Hour

400 SERIES—AUTOMATIC ELECTRIC
400 Gallons per Hour



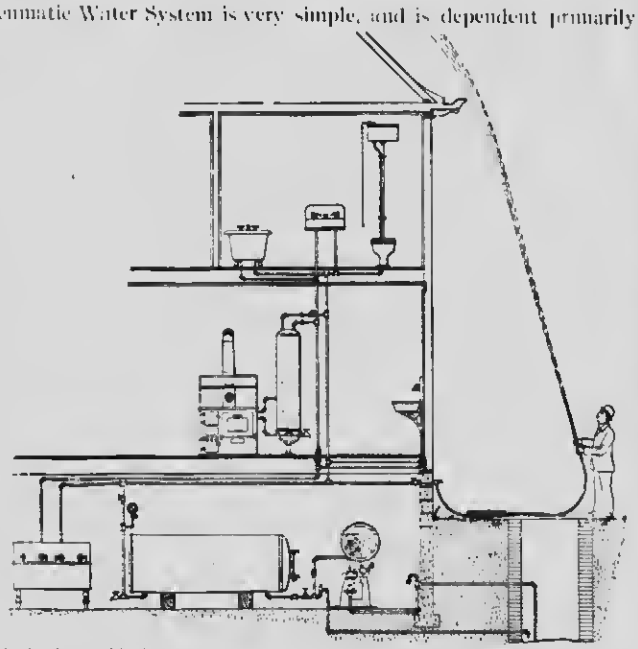
112 SERIES—HAND POWER

OPERATION. The operation of a "Peerless" Pneumatic Water System is very simple, and is dependent primarily upon the use of a perfectly air-tight tank, to the bottom of which are connected two pipes, one to convey the water from the pump to the tank and the other to supply the plumbing fixtures in the building.

As the water is forced into the tank and begins to displace the air, the latter is compressed into an ever-decreasing space, thus creating a force known as pressure.

If the tap in the basement were opened, all of the water would be easily expelled by the compressed air expanding to its normal volume, while a lesser amount of water would be discharged through taps at a higher elevation.

With an absolutely air-tight tank, the contained air can be lost only in one way, viz., its absorption by the water, and, as a rule, loss due to this cause is infinitesimal. Provision is made, however, on every "Peerless" Water System to introduce, through a very simple device that cannot leak water, any quantity of air that from time to time may be found necessary.



Sectional view of Residence fitted with Peerless Pneumatic System, which may be operated by Hot Air Engine as shown, or any other motive power.

ACETYLENE CONSTRUCTION COMPANY, LIMITED

603 Power Building, Montreal, Que.

Branches at: Shawinigan Falls, Que.; St. Catharines, Ont.
Brandon, Man.; Saskatoon, Sask., Calgary, Alta.
Edmonton, Alta., Vancouver, B.C.

PRODUCT — ACETYLENE. The ideal illuminant for the country home.

GENERAL FACTS ABOUT ACETYLENE — Acetylene Gas is obtained by the action of Water on Calcium Carbide. When water is brought into contact with Carbide in a generator built for the purpose, Acetylene is rapidly given off. The residue after the reaction is slaked lime, which can be used for mortar, whitewash, or any other purpose that ordinary slaked lime can be used.

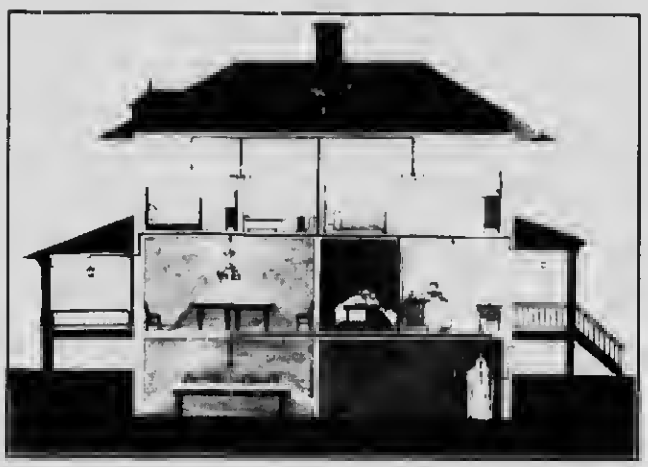
Acetylene is a colourless, transparent, Non Poisonous Hydro Carbon Gas, with the property of burning, with a pure white light which is the Nearest Known Illuminant to Daylight. For this reason it is often called "Sunlight on Tap."

Eye strain is unknown with Acetylene illumination, as the colour of the light is exactly suited to the human eye.

HOW ACETYLENE IS INSTALLED — The accompanying sketch will give a good general idea of an installation in a home.

Taking as an example a fifty light installation, or smaller, the size of pipe required is $\frac{3}{4}$ inch for the main pipe line from top to bottom of the house. The branch mains on each floor should be $\frac{1}{2}$ inch and the branches to each fixture $\frac{3}{8}$ inch. Smaller pipe could be used, but is not recommended.

With these figures your plumber can give you an estimate of the cost of installing the piping. The cost of fixtures, of course, depends upon the personal taste, but, roughly speaking, can be obtained for 50 cents each up, and are the same as those used for city gas, with the exception that the burner tips have to be special for Acetylene. These burners sell at about 25 cents each.



OUR GUARANTEE. — This Company does not guarantee all generators offered for sale to the General Public. We do sell a generator with which we give the following guarantee:

"Having confidence in our Generators we guarantee to replace the generator or refund the price paid for same if damaged by exploding within one year from the date it is installed, provided it is operated according to the printed rules and regulations supplied with each Generator."

This Generator has the approval of the different Boards of Fire Underwriters of Canada.

COST OF ACETYLENE. — Calcium Carbide in ton lots costs $3\frac{1}{2}$ cents per pound f.o.b. the works Merritton, Ont., or Shawinigan Falls, Que. One pound of Carbide will give off over four and one-half cubic feet of gas, therefore allowing a liberal allowance for transportation charges the cost may be assumed as one cent per cubic foot. One-half cubic foot of Acetylene per hour will give a twenty-four candle power light, or, in other words, a twenty-four candle power light will cost one-half cent per hour.

COOK WITH ACETYLENE. — Acetylene, due to its great heating power, is ideal for cooking, and can be used economically where comfort is a consideration. Stoves and heaters of all styles are manufactured and can be obtained for any particular purpose from this Company.

CONTRACTORS' LAMPS. — Portable lamps can be supplied, giving from 5,000 candle power down to what can be fastened on the cap, for the miner and labourer who needs his hands free. The large lamps are invaluable for use during construction work at night, for wrecking trains, dredges and other operations too extensive to mention here.

Acetylene is invaluable to the farmer for night work. It is the ideal light for plowing, harrowing and threshing at night.

CO-OPERATION. — We have experts who can tell you how to apply Acetylene for your particular use. Write us and we will place them at your disposal.

STEEL AND RADIATION, LIMITED

HEAD OFFICE
FRASER AVENUE, TORONTO, ONT.

BRANCHES
MONTREAL, 304 UNIVERSITY ST.
QUEBEC, 101 ST. JOHN STREET.

SHOW ROOMS,
80 ADELAIDE STREET EAST.

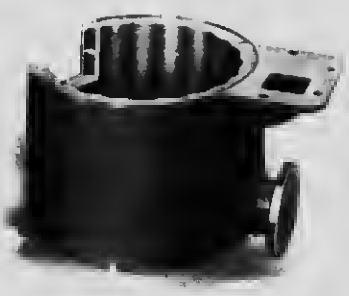
AGENCIES
WINNIPEG, CALGARY, ST. JOHN, HALIFAX, VANCOUVER, HAMILTON, AND EDMONTON.

PLANTS
ST. CATHARINES, ONT. TORONTO, ONT.

PLANT. "KING" AND "ROYAL" BOILERS are manufactured at our new Boiler and Radiator Plant at St. Catharines, which is the most modern and finest equipped on the continent.

"KING" BOILERS. "ROYAL" BOILERS. "KING" and "ROYAL" Hot Water and Steam Boilers are the latest and most improved on the market. They have been rigidly tested under the most severe conditions, and are now accepted throughout the Dominion of Canada as representing efficiency of the highest type at lowest coal consumption, of any boilers on the market.

No. 6 "HIGH BASE" "KING" BOILER SHOWING DOUBLE SHAKER



"KING" FIRE POT SHOWING WIDE CORRUGATION ADDING ONE THIRD TO HEATING CAPACITY

"KING" ONE-PIECE ASHPIT SHOWING PATENTED IMPROVED TROUBLE PROOF GRATES AND SHAKING MECHANISM FREE FROM BOLTS OR PINS

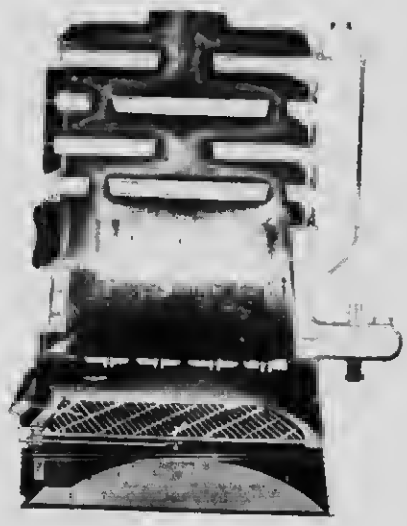
LISTS, DIMENSIONS AND CAPACITIES

Size	Rating in Square Feet Direct Radiation	List Prices		Height to Top of Dome		Diameter in Inches of				Depth to Fire Pot	No. of Mains Flow and Return	Size of Coal
		High Base	Low Base	High Base	Low Base	Smoke Pipe	Base Rim	Fire Pot Top	Fire Pot Bottom			
1	250	$111 00	$105 00	52"	48	8	26"	14"	10	19½	4	Stove
2	450	142 00	130 00	56½	52"	8	29"	14	10	19½	4	Stove
3	600	185 00	170 00	60"	56"	8	32"	14	10	19½	4	Stove
4	800	230 00	210 00	68	58½	8	36	16½	12½	19½	4	Stove
5	975	290 00	270 00	70	60½	8	40	16½	12½	19½	4	Stove
6	1,200	345 00	320 00	74	64½	8	44	20	14½	19½	4	Stove
7	1,450	415 00	385 00	78	68½	10	48	20	14½	19½	4	Stove
8	1,650	490 00	460 00	84	72½	10	52	24	16½	19½	4	Stove
9	1,900	560 00	520 00	84	72½	10	56	24	16½	19½	4	Stove
10	2,200	650 00	600 00	84	72½	10	60	24	16½	19½	4	Stove
11	2,500	750 00	700 00	84	72½	10	64	24	16½	19½	4	Stove
12	2,800	850 00	800 00	84	72½	10	68	24	16½	19½	4	Stove
13	3,100	950 00	900 00	84	72½	10	72	24	16½	19½	4	Stove
14	3,400	1050 00	1000 00	84	72½	10	76	24	16½	19½	4	Stove
15	3,700	1150 00	1100 00	84	72½	10	80	24	16½	19½	4	Stove
16	4,000	1250 00	1200 00	84	72½	10	84	24	16½	19½	4	Stove
17	4,300	1350 00	1300 00	84	72½	10	88	24	16½	19½	4	Stove
18	4,600	1450 00	1400 00	84	72½	10	92	24	16½	19½	4	Stove
19	4,900	1550 00	1500 00	84	72½	10	96	24	16½	19½	4	Stove
20	5,200	1650 00	1600 00	84	72½	10	100	24	16½	19½	4	Stove

NOTE. The ratings for "King" Boilers are based on the capacity of each joint and radiator made. No extra [illegible] for Special Headers. All half sizes have the sections above fire pot.

BRIEF POINTS OF MERIT THAT DISTINGUISH THE "KING" BOILER.

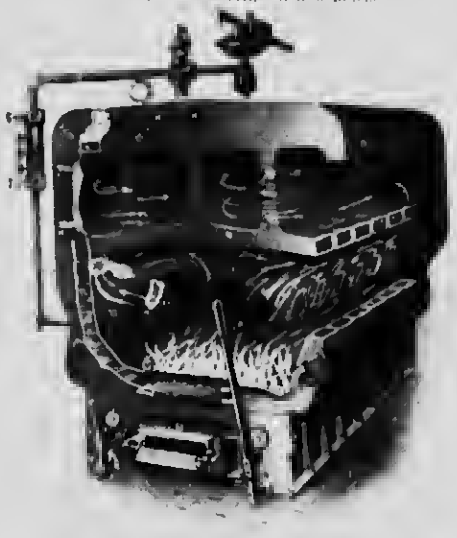
The Roomy Ashpit.
The Fine Shaking and Dumping Grates.
The Convenient and Simple Shaking Apparatus.
The Large and Accurately Fitted Doors.
The Widely Corrugated Fire Pot.
The Ample Combustion Chamber in Fire Pot and Flues.
The Well Arranged and Extended Heating Surfaces.
The Easily Cleaned Flues.
The Rapid Circulation of Water.
The Quality and Weight of Iron.
The Even Metal Line secured by using Iron Patterns.
The Ease of Erection of the Entire Boiler.
The Double Inspection and Rigid Test of each Boiler, before and after assembling.
The Guaranteed Rating, based on actual individual tests conducted by experts.



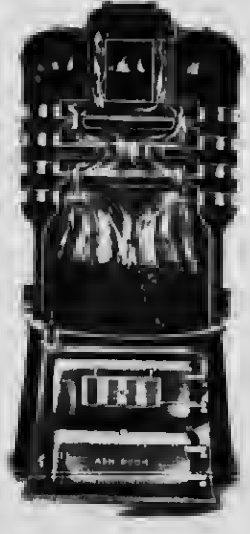
SECTIONAL VIEW OF "KING" BOILER SHOWING IMPROVED DESIGN OF WATERWAYS COMBUSTION CHAMBER AND FIRE TRAVEL.

CONTINUED ON NEXT PAGE

W 10 S "ROYAL" WATER BOILER



SECTIONAL VIEW OF S 10 S "ROYAL" STEAM BOILER



SECTIONAL VIEW SHOWING FIRE TRAVEL, LARGE DOME AND PUSH-NIPPLE CONSTRUCTION No. 4 28 S

"ROYAL" SQUARE SECTIONAL STEAM AND WATER BOILERS

HEATING SURFACE.

Note the arched Fire Chamber and extended overhanging heating surface.

FIRE TRAVEL.

Observe the triple fire travel on both sides of the Boiler, also the cross fire channels between each section.

This Boiler is so constructed that a perfect circulation and a steady water line is maintained.

Ample steam space in Dome.

"ROYAL" SQUARE SECTIONAL WATER BOILERS.

PRICES, DIMENSIONS AND CAPACITIES

Size	Gross Rating Square Feet Radiation	Price List	Grate Area Square Feet	Actual Fire Flue Area Square Feet	Regular Tube plugs, Inches	Size Firebox Door Inches	Height to Top of Outlet Inches	Total Width Inches	Total Length Inches	Smoke Pipe	Ship ping Weight
W 10 S	1,000	$285 00	1 17	1 78	2 4	21 × 20½	37	42½	29½	10	910
W 10 6	1,250	325 00	1 10	1 68	2 4	21 × 20	37	42	36	10	1,270
W 10 7	1,500	375 00	3 02	2 12	2 4	21 × 24	37	44	44	10	2,090
W 28 S	1,850	425 00	1 93	3 11	2 4	28 × 11	37	19	42	12	2,500
W 28 6	2,300	475 00	2 16	3 64	2 4	28 × 19	37	30	42	12	3,025
W 28 7	2,600	525 00	2 18	4 18	2 4	28 × 27	37	41	42	12	3,445
W 28 8	3,050	625 00	3 60	5 37	2 4	28 × 35	37	52	42	12	4,010
W 16 S	1,450	375 00	2 18	3 37	2 4	21 × 30	37	44	36	12	3,085
W 16 6	1,850	500 00	2 80	4 32	2 4	21 × 42	37	56	42	12	4,500
W 16 7	2,200	625 00	3 38	5 01	2 4	21 × 54	37	68	48	12	5,915
W 16 8	2,600	750 00	4 00	6 01	2 4	21 × 66½	37	80	54	12	7,330
W 18 S	1,850	450 00	2 64	4 08	2 4	24 × 30	37	44	42	12	3,500
W 18 6	2,300	600 00	3 30	5 09	2 4	24 × 42	37	56	48	12	4,915
W 18 7	2,800	750 00	3 96	6 10	2 4	24 × 54	37	68	54	12	6,330
W 18 8	3,300	900 00	4 62	7 12	2 4	24 × 66½	37	80	60	12	7,750
W 28 S	2,850	675 00	4 16	6 42	2 4	28 × 30	37	44	48	12	4,500
W 28 6	3,550	900 00	5 20	8 01	2 4	28 × 42	37	56	54	12	6,330
W 28 7	4,250	1,125 00	6 24	9 60	2 4	28 × 54	37	68	60	12	8,160
W 28 8	5,000	1,350 00	7 28	11 19	2 4	28 × 66½	37	80	66	12	9,990
W 38 S	4,250	1,000 00	6 18	9 52	2 4	28 × 42	37	56	60	12	7,160
W 38 6	5,300	1,350 00	7 72	11 90	2 4	28 × 54	37	68	66	12	9,990
W 38 7	6,350	1,700 00	9 26	14 28	2 4	28 × 66½	37	80	72	12	12,820
W 38 8	7,400	2,050 00	10 80	16 66	2 4	28 × 79	37	93	78	12	15,650

"ROYAL" SQUARE SECTIONAL STEAM BOILERS.

PRICES, DIMENSIONS AND CAPACITIES

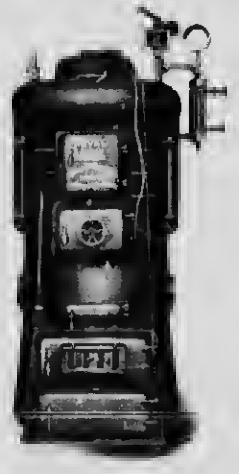
Size	Gross Rating Square Feet Radiation	List Price	Grate Area Square Feet	Actual Fire Flue Area Square Feet	Regular Tube plugs, Inches	Size Firebox Door Inches	Height to Top of Outlet Inches	Total Width Inches	Total Length Inches	Height to Water Line, In	Smoke Pipe	Ship ping Weight
S 10 S	1000	$312 50	1 17	1 78	2 4	21 × 20½	37	42½	29½	11½	10	1,040
S 10 6	1250	350 00	1 10	1 68	2 4	21 × 20	37	42	36	11½	10	1,270
S 10 7	1500	400 00	3 02	2 12	2 4	21 × 24	37	44	44	11½	10	2,090
S 28 S	1850	450 00	1 93	3 11	2 4	28 × 11	37	19	42	11½	12	2,500
S 28 6	2300	512 50	2 16	3 64	2 4	28 × 19	37	30	42	11½	12	3,025
S 28 7	2600	575 00	2 18	4 18	2 4	28 × 27	37	41	42	11½	12	3,445
S 28 8	3050	637 50	3 60	5 37	2 4	28 × 35	37	52	42	11½	12	4,010
S 16 S	1450	412 50	2 18	3 37	2 4	21 × 30	37	44	36	11½	12	3,085
S 16 6	1850	550 00	2 80	4 32	2 4	21 × 42	37	56	42	11½	12	4,500
S 16 7	2200	687 50	3 38	5 01	2 4	21 × 54	37	68	48	11½	12	5,915
S 16 8	2600	825 00	4 00	6 01	2 4	21 × 66½	37	80	54	11½	12	7,330
S 18 S	1850	495 00	2 64	4 08	2 4	24 × 30	37	44	42	11½	12	3,500
S 18 6	2300	660 00	3 30	5 09	2 4	24 × 42	37	56	48	11½	12	4,915
S 18 7	2800	825 00	3 96	6 10	2 4	24 × 54	37	68	54	11½	12	6,330
S 18 8	3300	990 00	4 62	7 12	2 4	24 × 66½	37	80	60	11½	12	7,750
S 28 S	2850	742 50	4 16	6 42	2 4	28 × 30	37	44	48	11½	12	4,500
S 28 6	3550	990 00	5 20	8 01	2 4	28 × 42	37	56	54	11½	12	6,330
S 28 7	4250	1,237 50	6 24	9 60	2 4	28 × 54	37	68	60	11½	12	8,160
S 28 8	5000	1,485 00	7 28	11 19	2 4	28 × 66½	37	80	66	11½	12	9,990
S 38 S	4250	1,100 00	6 18	9 52	2 4	28 × 42	37	56	60	11½	12	7,160
S 38 6	5300	1,485 00	7 72	11 90	2 4	28 × 54	37	68	66	11½	12	9,990
S 38 7	6350	1,870 00	9 26	14 28	2 4	28 × 66½	37	80	72	11½	12	12,820
S 38 8	7400	2,255 00	10 80	16 66	2 4	28 × 79	37	93	78	11½	12	15,650
S 48 S	5300	1,612 50	8 20	11 90	2 4	28 × 42	37	56	72	11½	12	9,160
S 48 6	7950	2,227 50	11 80	17 85	2 4	28 × 54	37	68	84	11½	12	12,660
S 48 7	9300	2,842 50	13 40	20 83	2 4	28 × 66½	37	80	96	11½	12	16,160
S 48 8	10600	3,457 50	15 00	23 80	2 4	28 × 79	37	93	108	11½	12	19,660

"ROYAL" ROUND STEAM BOILERS.

"Royal" Round Steam Boilers are of the vertical type, assembled with heavy push nipples, as shown on cuts. The dome is made specially large to provide ample steam space. In other respects its construction is similar to the "King" Water Boiler shown on page 253.

PRICES, DIMENSIONS AND CAPACITIES

No.	Price, Complete Low Base	Price, Complete High Base	Gross Ratings, Square Feet	Height to Top of Outlet Low Base Inches	Height to Top of Outlet High Base Inches	Diameter of Base, Inches	Grate Area Square Feet	Average Fire Test Square Feet	Height of Water Line Low Base Inches	Height of Water Line High Base Inches	Size Outlet Tees Inlets Size, Inches	Smoke Pipe, Inches	No. of Sections Including Dome
4 10 S	$218 00	$237 50	350	34	40½	28	1 76	1 84	42	54½	2½	8	4
4 04 S	218 00	237 50	400	38	61	28	1 76	1 84	42	58½	2½	8	5
4 22 S	293 00	312 50	525	55	61	30	2 40	2 51	40	55	3	9	4
4 22 S	312 50	331 25	575	59	65	30	2 40	2 51	41	57	3	9	4
4 28 S	425 00	450 00	625	55	61	42	3 14	3 20	39	55	3½	10	4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4 28 S	400 00	431 25	900	61	68	54	4 12	4 30	51	61½	4	10	4
4 28 S	425 00	456 25	1,000	65	71	54	4 12	4 30	48	56	4	10	5
4 11 S	500 00	518 75	1,275	62	69½	57	4 90	5 10	54	61½	4	11	4
4 11 S	525 00	556 25	1,400	66	74	57	4 90	5 10	48	56	4	11	5
4 31 S	550 00	587 50	1,500	66½	75½	60	5 94	6 00	61	67½	5	11	4
4 14 S	587 50	625 00	1,650	74	80	60	5 94	6 00	66	74	5	11	5



No. 4 28 S "ROYAL" ROUND STEAM BOILER FITTED WITH "KING" ASHPIT, GRATES AND SHAKING MECHANISM.

CONTINUED ON NEXT PAGE

"ROYAL" ROUND H.W. PUSH NIPPLE BOILER

"Royal" Round Hot Water Boilers are of the vertical type, assembled with heavy push nipples. The water channels, being placed one on each side of the boiler, assure a quick and efficient circulation.

In all other respects this boiler is similar to the "King" Boiler illustrated on page 254 in this cat.

No. 1 ROYAL Hot Stove Heater

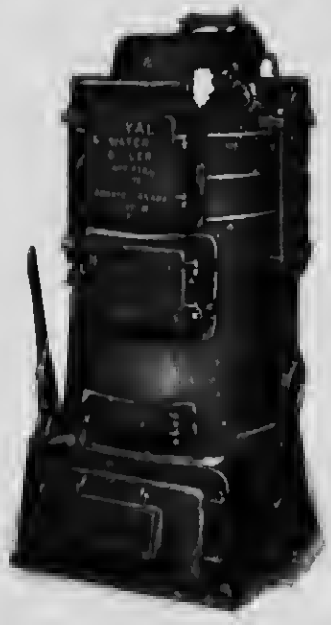
"ROYAL" WATER BOILER

HOT WATER DIMENSIONS AND CAPACITIES

No.	Radiation Square Feet Direct Rad.	List Price High Base	List Price Low Base	Height to Top Outlet, Inches*	Diameter Inches of				Depth of Base Feet Inches	Size of Outlet
				High Base	Low Base	Fire Pot	Shield Pipe	Casing		
1 to W	300	$ [illegible]	[illegible]	[illegible]	15	19	5	19	1 0	Steel
8 to W	375	[illegible]	[illegible]	[illegible]	15	19	6	19	1 0	Steel
4 W	450	215 00	195 00	42½	20		7	19	1 1	Steel
5 W	500	245 00	220 00	42½	20		7	19	1 1	Steel
1 to W	800	310 00	280 00	43½	17	18	8	18	1 1	Steel
8 to W	900	360 00	320 00	43½	17	18	8	18	1 1	Steel
1 W	1 000	390 00	350 00	45	21	18	8	18	1 1	Steel
2 W	1 200	420 00	380 00	45	21	18	10	18	1 1	Steel
3 W	1 400	450 00	400 00	45	21	18	10	18	1 1	Steel
4 W	1 600	480 00	430 00	45	21	18	10	18	1 1	Steel
5 W	1 800	520 00	460 00	45	21	18	10	18	1 1	Steel
6 W	2 000	560 00	500 00	45	21	18	10	18	1 1	Steel
7 W	2 200	600 00	540 00	45	21	18	10	18	1 1	Steel
8 W	2 400	650 00	580 00	45	21	18	10	18	1 1	Steel
9 W	2 600	700 00	630 00	45	21	18	10	18	1 1	Steel
10 W	2 800	750 00	675 00	45	21	18	10	18	1 1	Steel
11 W	3 000	800 00	720 00	45	21	18	10	18	1 1	Steel
12 W	3 200	850 00	765 00	45	21	18	10	18	1 1	Steel

These Boilers are of the push nipple construction.

NOTE.—The ratings for "Royal" Boilers are based on the capacity of each pipe and including mains.



No. 1 22 W "ROYAL" Boiler with Low Base

No. 1 Water Heater

"ROYAL" WATER AND LAUNDRY HEATERS.

PRICES, DIMENSIONS AND CAPACITIES

No.	List Price	Capacity Gallons	Approximate Heating Glass Capacity Square Feet	Nominal Diameter Inches	Grate Area Square Feet	Outlets and Inlets Inches
10	$ [illegible]	90	110	10	3.4	1
12	[illegible]	100	210	12	5.0	1
14	[illegible]	210	300	12	5.0	1 1/4
15	[illegible]	180	450	15	7.0	1 1/4
15A	[illegible]	125	405	15	7.0	1 1/4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

"CHIMNEY" FLUES.

Herewith is a table of chimney flue sizes which is commonly used with good results. It does not take into consideration varying heights of stacks, but is said to be reliable in average conditions.

Direct Radiation * Steam in Square Feet	Direct Radiation * Water in Square Feet	Size of Flue Round	Size of Flue Square
250	500	8	8 x 8
300	600	8	8 x 8
400	700	8	8 x 8
500	800	10	8 x 12
600	1,000	10	8 x 12
700	1,200	10	8 x 12
800	1,350	12	12 x 12
900	1,500	12	12 x 12
1,000	1,650	12	12 x 12
1,200	1,700	12	12 x 12
1,400	2,000	12	12 x 12
1,600	2,400	14	12 x 16
1,800	2,700	14	12 x 16
2,000	3,000	14	12 x 16
2,200	3,400	14	12 x 16
2,400	3,700	16	16 x 16
2,600	4,000	16	16 x 16
3,000	5,000	18	16 x 20
3,400	5,900	18	16 x 20
3,800	8,000	18	16 x 20

* Indirect radiation should be counted at 40 per cent. more than direct, as heating surface areas of this should be provided therefor. The amount of radiation determines the requisite size of boiler, and therefore area of flue.

ESTIMATING RADIATION

While the radiating surface which will be required in any room will largely depend upon the proportion of exposed wall and glass surface, there must, nevertheless, be some relation to the cubical contents of same, and, therefore, as the simplest and most feasible comprehended rule of apportioning radiation, we offer the following, derived from the experience of the best heating engineers. The proposition being a detached building, of average construction and exposure, and outside temperature zero.

BY HOT WATER

One square foot of direct radiation will heat

Dwellings	Cubic feet of space
Living Rooms, one side exposed	25 to 30
Living Rooms, two sides exposed	20 to 25
Living Rooms, three sides exposed	15 to 20
Sleeping Rooms	30 to 35
Halls and Bath Rooms	20 to 30
Public Buildings	
Offices	10 to 40
School Rooms	25 to 35
Factories and Stores	40 to 60
Assembly Halls and Churches	60 to 80

BY STEAM

Dwellings	
Living Rooms, one side exposed	50 to 55
Living Rooms, two sides exposed	45 to 50
Living Rooms, three sides exposed	40 to 45
Sleeping Rooms	60 to 70
Halls and Bath Rooms	40 to 50

BY STEAM (Continued)

Public Buildings	
Offices	[illegible]
School Rooms	[illegible]
Factories and Stores	[illegible]
Assembly Halls and Churches	[illegible]

Allowances should be made for extraordinary conditions, such as character of building location, exposure and quality of construction, loose windows and doors and [illegible] exposure, and the necessary lengths of distributing mains.

Professor R. C. Carpenter, of Cornell University, submits the following rule as a guide among the sizes of radiation needed for a given room:

RULE.—Add the area of the glass surface in the room to one-quarter of the [illegible] wall surface, and to the total from 1.85 to 1.88 of the cubical contents—1.85 for the upper floor, 2.85 for rooms on first floor and 1.85 for large halls; then for an ordinary upper floor 28, and for water 70.

HEATING GREENHOUSES AND CONSERVATORIES

The proposition being for a good construction of building without exceptional conditions the following will be safe practice in the assignment of radiation to meet extremes of zero weather:

Hot Water		
Temperature	160 to 180 Degrees	180 to 200 Degrees
One square foot of surface to	1½ to 1 sq. feet Glass	One to ¾ sq. feet Glass
Steam		
Temperature	40 to 50 Degrees	50 to 70 Degrees
One square foot of surface to	¾ to ½ sq. feet Glass	½ to ⅓ sq. feet Glass

Giving found the amount of radiation required, when it is for a [illegible] one in two stories latter and one that will just do the work. A larger boiler and under slower combustion, holding always a large reserve power to meet sudden changes and emergencies, will be in the end of economy and a security to the best results.

One important part of a good water plant is the chimney, it should be of brick or tile of ample size and height not less than 40 feet high. Sheet iron cannot should not be tolerated.

CAPACITIES OF WROUGHT IRON PIPE

Inside Diameter Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Length of pipe per square foot of external surface	2.9	2.3	1.8	1.4	1.1	0.9	0.8	0.7	0.6	0.5	0.5	0.4	0.4	0.3	0.3
Square feet surface per lineal foot	0.34	0.43	0.55	0.70	0.92	1.09	1.25	1.48	1.72	1.96	2.17	2.41	2.65	2.89	3.38
Length of pipe necessary to contain 1 gallon of water	22.3	12.8	8.0	4.8	3.2	2.4	1.9	1.4	1.1	0.9	0.8	0.6	0.5	0.4	0.3

EXPANSION OF WROUGHT IRON PIPE.

Temperature of the Air when Pipe is Fitted	Length of Pipe when Fitted	Length of Pipe when heated to 215°		265°		297°		348°	
		ft	in	ft	in	ft	in	ft	in
Zero.	100 feet	100	1 72	100	2 12	100	2 61	100	2 70
32°	100 "	100	1 47	100	1 78	100	2 12	100	2 45
64°	100 "	100	1 21	100	1 61	100	1 87	100	2 19

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STEEL AND RADIATION, LIMITED

HEAD OFFICE
FRASER AVENUE, TORONTO

BRANCHES
MONTREAL 901 UNIVERSITY ST
QUEBEC 101 ST JOHN STREET

SHOW ROOM
50 ADELAIDE STREET EAST
TORONTO

AGENCIES
WINNIPEG, CALGARY, ST JOHN,
HALIFAX, VANCOUVER, HAMILTON,
AND EDMONTON.

PLANTS
ST CATHARINES, ONT
TORONTO, ONT

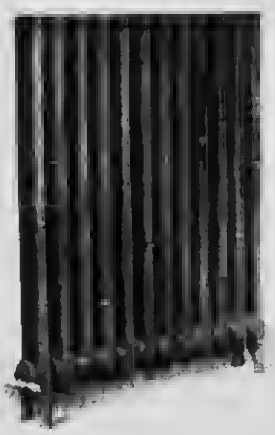
FACTORIES. "KING" AND "IMPERIAL" RADIATORS are manufactured at St. Helens Avenue, Toronto, and St. Catharines plants, which are the most modern and finest equipped on the continent

CONSTRUCTION "KING" AND "IMPERIAL" are (screw nipple connection) Radiators made from the best pig iron, and are subjected to the most thorough test by hydraulic pressure before shipping. Special 2-inch Water Way in bottom.

STYLES AND SIZES "KING" two, three and four column widths in ornamental and plain pattern "KING" five column Window Radiators plain only. "KING" Ornamental and Plain Wall Radiators "IMPERIAL" one, two and three column plain and ornamental. Complete range of sizes are given below. Tappings as required

A feature of "KING" and "IMPERIAL" Radiation is the uniformity of ornamentation, permitting the use of radiators of different widths in one room without conflicting patterns.

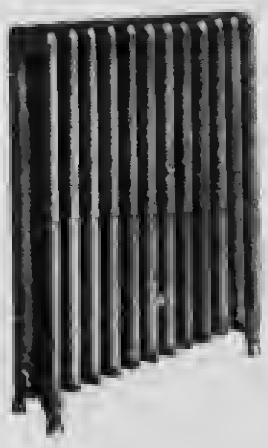
"IMPERIAL" ONE COLUMN



Width of Radiator 4"
Length of Radiator per Section
Plain

Imperial Water or Steam Plain and Ornamental

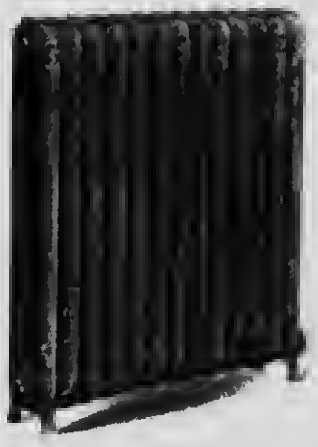
"IMPERIAL" TWO COLUMN.



Width of Radiator
Length of Radiator per Section
Plain

King Water or Steam. Plain and Ornamental.

"KING" TWO COLUMN.



Width of Radiator 2¼"
Length of Radiator per Section, 2¼"
Ornamental

"IMPERIAL" ONE COLUMN.

CAPACITIES AND DIMENSIONS

HEATING SURFACE IN SQUARE FEET

Number of Section	Length of Radiator	15 in High 1 sq ft per Section	20 in High 1½ sq ft per Section	25 in High 2 sq ft per Section	30 in High 2½ sq ft per Section	36 in High 3 sq ft per Section
2	5	2	3	4	5	6
3	7	3	4½	6	7½	9
4	9	4	6	8	10	12
5	11	5	7½	10	12½	15
6	13	6	9	12	15	18
7	15	7	10½	14	17½	21
8	17	8	12	16	20	24
9	19	9	13½	18	22½	27
10	21	10	15	20	25	30
11	23	11	16½	22	27½	33
12	25	12	18	24	30	36
13	27	13	19½	26	32½	39
14	29	14	21	28	35	42
15	31	15	22½	30	37½	45
16	33	16	24	32	40	48
17	35	17	25½	34	42½	51
18	37	18	27	36	45	54
19	39	19	28½	38	47½	57
20	41	20	30	40	50	60
21	43	21	31½	42	52½	63
22	45	22	33	44	55	66
23	47	23	34½	46	57½	69
24	49	24	36	48	60	72
25	51	25	37½	50	62½	75

"IMPERIAL" AND "KING" TWO COLUMN.

CAPACITIES AND DIMENSIONS

HEATING SURFACE IN SQUARE FEET

Number of Section	Length of Radiator	48 in High 4 sq ft per Section	45 in High 3¾ sq ft per Section	42 in High 3½ sq ft per Section	38 in High 3 sq ft per Section	36 in High 2¾ sq ft per Section	34 in High 2½ sq ft per Section	30 in High 2 sq ft per Section
2	6	8	7½	7	6	5½	5	4
3	8½	12	11	10½	9	8	7½	6
4	11	16	15	14	12	11	10	8
5	13½	20	18¾	17½	15	13½	12½	10
6	16	24	22½	21	18	16½	15	12
7	18½	28	26¼	24½	21	19½	17½	14
8	21	32	30	28	24	22	20	16
9	23½	36	33¾	31½	27	25	22½	18
10	26	40	37½	35	30	27½	25	20
11	28½	44	41¼	38½	33	30½	27½	22
12	31	48	45	42	36	33	30	24
13	33½	52	48¾	45½	39	36	32½	26
14	36	56	52½	49	42	38½	35	28
15	38½	60	56¼	52½	45	41½	37½	30
16	41	64	60	56	48	44	40	32
17	43½	68	63¾	59½	51	47	42½	34
18	46	72	67½	63	54	49½	45	36
19	48½	76	71¼	66½	57	52½	47½	38
20	51	80	75	70	60	55	50	40
21	53½	84	78¾	73½	63	57½	52½	42
22	56	88	82½	77	66	60½	55	44
23	58½	92	86¼	80½	69	63½	57½	46
24	61	96	90	84	72	66	60	48
25	63½	100	93¾	87½	75	68½	62½	50

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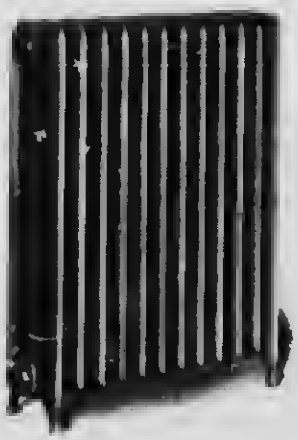
"IMPERIAL" THREE COLUMN



Width of Radiator, 11"
Length of Radiator per Section, 4"
Plain

KING" FOUR COLUMN

Width of Radiator, 9"
Length of Radiator per Section, 4"
Plain

KING" FOUR COLUMN

Width of Radiator, 9"
Length of Radiator per Section, 4"
Ornamental

"IMPERIAL" THREE COLUMN.

CAPACITIES AND DIMENSIONS

Heating Surface in Square Feet

Number of Sections	Length of Radiator	14 in. High 9 sq. ft. per Section	18 in. High 12 sq. ft. per Section	22 in. High 15 sq. ft. per Section	26 in. High 18 sq. ft. per Section	30 in. High 21 sq. ft. per Section	34 in. High 24 sq. ft. per Section
2	8	12	16	18	23	26	30
3	12	18	24	27	34	39	45
4	16	24	32	36	46	52	60
5	20	30	40	45	57	65	75
6	24	36	48	54	69	78	90
7	28	42	56	63	80	91	105
8	32	48	64	72	92	104	120
9	36	54	72	81	103	117	135
10	40	60	80	90	115	130	150
11	44	66	88	99	126	143	165
12	48	72	96	108	138	156	180
13	52	78	104	117	149	169	195
14	56	84	112	126	161	182	210
15	60	90	120	135	172	195	225
16	64	96	128	144	184	208	240
17	68	102	136	153	195	221	255
18	72	108	144	162	207	234	270
19	76	114	152	171	218	247	285
20	80	120	160	180	230	260	300
21	84	126	168	189	241	273	315
22	88	132	176	198	253	286	330
23	92	138	184	207	264	299	345
24	96	144	192	216	276	312	360
25	100	150	200	225	287	325	375

"KING" FOUR COLUMN.

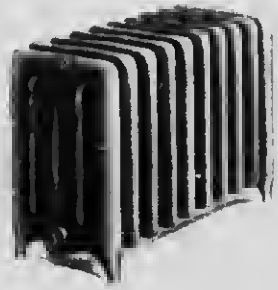
CAPACITIES AND DIMENSIONS

Heating Surface in Square Feet

Number of Sections	Length of Radiator	42 in. High 9 sq. ft. per Section	38 in. High 8 sq. ft. per Section	34 in. High 7 sq. ft. per Section	30 in. High 6 sq. ft. per Section	26 in. High 5 sq. ft. per Section	22 in. High 4 sq. ft. per Section
2	8	18	16	14	12	10	8
3	12	27	24	21	18	15	12
4	16	36	32	28	24	20	16
5	20	45	40	35	30	25	20
6	24	54	48	42	36	30	24
7	28	63	56	49	42	35	28
8	32	72	64	56	48	40	32
9	36	81	72	63	54	45	36
10	40	90	80	70	60	50	40
11	44	99	88	77	66	55	44
12	48	108	96	84	72	60	48
13	52	117	104	91	78	65	52
14	56	126	112	98	84	70	56
15	60	135	120	105	90	75	60
16	64	144	128	112	96	80	64
17	68	153	136	119	102	85	68
18	72	162	144	126	108	90	72
19	76	171	152	133	114	95	76
20	80	180	160	140	120	100	80
21	84	189	168	147	126	105	84
22	88	198	176	154	132	110	88
23	92	207	184	161	138	115	92
24	96	216	192	168	144	120	96
25	100	225	200	175	150	125	100

"KING" FIVE COLUMN WINDOW RADIATOR

CAPACITIES AND DIMENSIONS

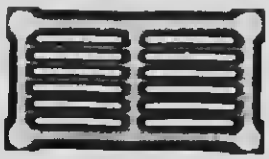


Width of Radiator, 11"
Length of Radiator per Section, 4".
Hot Water and Steam
Plain Only

Heating Surface in Square Feet

Number of Sections	Length of Radiator	20 in. High 9 sq. ft. per Section	18 in. High 8 sq. ft. per Section	16 in. High 7 sq. ft. per Section	14 in. High 6 sq. ft. per Section
2	8	18	16	14	12
3	12	27	24	21	18
4	16	36	32	28	24
5	20	45	40	35	30
6	24	54	48	42	36
7	28	63	56	49	42
8	32	72	64	56	48
9	36	81	72	63	54
10	40	90	80	70	60
11	44	99	88	77	66
12	48	108	96	84	72
13	52	117	104	91	78
14	56	126	112	98	84
15	60	135	120	105	90
16	64	144	128	112	96
17	68	153	136	119	102
18	72	162	144	126	108
19	76	171	152	133	114
20	80	180	160	140	120
21	84	189	168	147	126
22	88	198	176	154	132
23	92	207	184	161	138
24	96	216	192	168	144
25	100	225	200	175	150

"KING" WALL RADIATOR.



11" Width and Steam
Plain or Ornamental

DIMENSIONS AND CAPACITIES

Square Feet per Section	Width Inches	Length Inches	Thickness of Hub Inches
3	13	11	11
7	11	25	11
6	13	21	11
5	13	17	3

Radiators may be made up of any number of sections and in any desired variety of vertical or horizontal arrangement

WARDEN KING, LIMITED

EXECUTIVE OFFICES AND WORKS:
BENNETT AVE., MAISONNEUVE,
MONTREAL, QUE.

TORONTO BRANCH:
200 ADELAIDE ST. WEST.

SALES OFFICE AND CITY WAREHOUSE:
151 CRAIG STREET WEST,
MONTREAL, QUE.

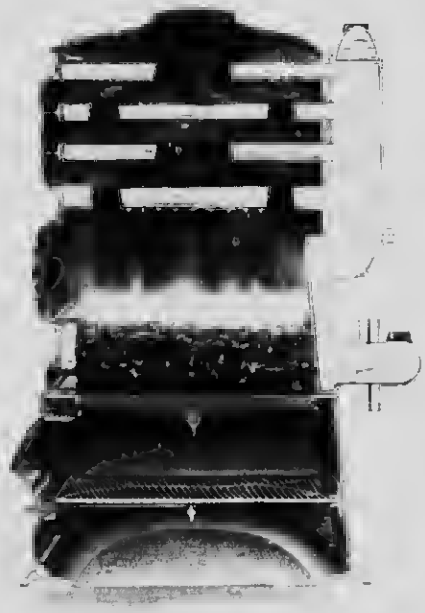
PRODUCTS. The "DAISY" BOILER is twenty-five years old, and there are over 50,000 in use.

"DAISY" BOILER. The "Daisy" Boiler of to-day is constructed practically on the same lines as those first put out in 1886. It is built in one of the best equipped plants on the continent, and the very best material is used in every part of it. Its durability is proved by the fact that many of those which were first placed in operation are still giving the best of service.

The "Daisy" is easy to clean and easy to operate. In the morning, after the fire has been banked all night, an eighth of a turn of the shaker handle serves to cut off dead ashes and clinkers, and the fire responds immediately; a full quarter turn of the handle dumps the contents of the grate into the base.

FIG. A

FIG. B.



FIRE-POT. The Fire Pot Section (Fig. B) is so deep that all gases are consumed in the combustion chamber, consequently a high temperature of water is maintained on minimum fuel consumption. On the inside of the fire-pot are vertical ribs to permit the air to rise freely through the coal at the outside edges of the fire, keeping it burning evenly and preventing the accumulation of ashes near the water in the fire-pot section.

FIRST SECTION. The First Section of the "Daisy" (Fig. A) is directly over the combustion chamber, and receives at right angles direct currents of gases of the most intense heat. In order to absorb all the heat possible we have increased the water capacity of this section, enlarged the waterways and placed raised rings on the inside, thereby increasing the heating surface and retarding the passage of gases until the water has absorbed the greatest possible amount of heat.

WATER-POST. The Water-Post is the connecting passage between the different water sections of the boiler, and possesses exclusive features. Its interior is divided by a partition which separates the flow and return openings. The water rising from the fire-pot enters one side of this casting and passes into the large openings of each section simultaneously, thus insuring positive and continuous circulation. The "Daisy" water-post admits of one or more sections being shut off, the use of the others being continued, so that *in case of accident any of the sections may be detached and replaced without disturbing the piping.*

CONTINUED ON NEXT PAGE

COMBUSTION CHAMBER AND FLUES. The Combustion Chamber and Flues are so proportioned and arranged that the combustion of the gases commencing in the fire-pot is completed before they escape to the chimney.

NOTE. When desired, two or more "Daisy" Boilers may be connected in series, and under this arrangement they may be used singly or together.

NET CAPACITIES (NOT INCLUDING MAINS), DIMENSIONS AND PRICES

Boiler Number	Net Capacity linear feet of inch pipe	Net Capacity in square feet	List Price		Height to Top of Dome		Diameter of Smoke Pipe	Diameter of base Ring	Diameter at Fire Pot Top	Diameter at Fire Pot Bottom	Depth of Fire Pot	No. of Mains flow and return	Size of Expansion Pipe	Size of Coal
			High Base	Low Base	High Base	Low Base								
0	5001	167	$ 94 00	$ 88 00	51 ins	44 ins.	7 ins.	2 ft. 3 ins.	15¾ ins	17½ ins	15½ ins	4-2 in	1 in	Chestnut
1	7001	233	111 00	105 00	54½ ins	48 ins.	7 ins.	2 ft 3 ins.	15¾ ins	17½ ins	15½ ins	4-2 in	1 in	Chestnut
2	10001	333	147 00	140 00	56 ins.	49½ ins.	7 ins	2 ft 7 ins.	18½ ins	20½ ins	16 ins.	4-2 in	1 in	Stove
3	15001	5001	171 00	160 00	58 ins.	51 ins	8 ins.	2 ft 11½ ins	19¼ ins	21½ ins	16½ ins	4-2 in	1 in	Stove
4	21001	6667	215 00	200 00	60 ins	53½ ins.	8 ins.	3 ft. 1½ ins.	22½ ins	24⅝ ins	16½ ins	4-2 in	1 in.	Stove
5	25001	8333	260 00	240 00	62 ins.	55½ ins.	10 ins.	3 ft. 3 ins	24½ ins	26½ ins	16½ ins.	6-2 in	1 in	Egg
6	30001	10001	290 00	270 00	64½ ins	58 ins.	11 ins	3 ft 5½ ins.	27 ins	28½ ins	17½ ins	7-2 in	1¼ in	Egg
6½	37501	12501	360 00	335 00	66½ ins	60 ins.	11 ins	3 ft 6½ ins	29¼ ins	31½ ins	17½ ins	6-2 2½	1¼ in.	Egg
7	45001	15001	420 00	392 00	69 ins.	62 ins.	12 ins.	3 ft 9 ins	32¼ ins	34 ins.	18 ins.	11-2 in	1¼ in	Egg
8	60001	21001	515 00	475 00	71½ ins	63½ ins.	12 ins.	4 ft 2½ ins.	37½ ins	39 ins	18½ ins.	13-2 in	1½ in	Egg
9	80001	26667	554 00	524 00	73½ ins	67 ins.	12 ins.	4 ft. 4½ ins.	39½ ms	41½ ins	18½ ins	13-2 in	1½ in	Egg
10	120001	40001	1110 00	851 00	Special	Special	12 ins.	Special	Special	Special	Special	Special	2 in	Furnace

"VIKING" BOILERS FOR STEAM AND HOT WATER.

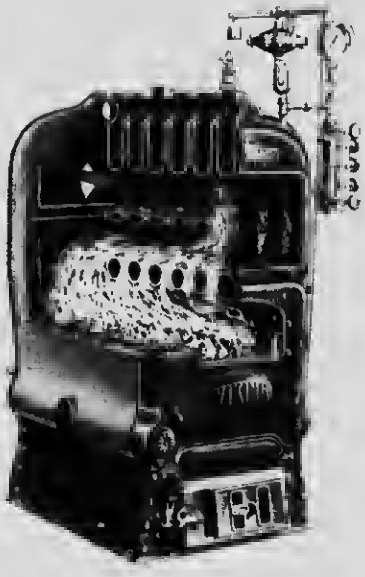


FIG. A

FIG. B.

"VIKING" BOILERS "Viking" Boilers, for steam and hot water, are noted for their prompt response to a quickened fire. Note the ample height of the combustion chamber above the fire, also the extent and arrangement of the interior surfaces to insure the maximum fuel heat being absorbed.

"Viking" Boilers are especially designed for deep, slowly-burning fires, fourteen to sixteen inches thick and more, consequently an effective fire is easily maintained all night or during the day with the least possible attention; coal burns slowly and completely, without clinkers and with greatest economy. All our fire-boxes are proportioned for moderate consumption.

CONTINUED ON NEXT PAGE

REGULATOR. An improved sensitive diaphragm Regulator (Fig. A) is furnished with all steam "Vikings." The diaphragm is unusually large and responds quickly to the slightest change of boiler pressure, opening draft and damper when the pressure falls and closing them when it rises. The pressure to be carried is regulated by the counterweight. With adequate draft and fuel and when connected with our improved balance check-damper (Fig. B), this regulator will automatically control and maintain steam pressure.

CONSTRUCTION. Sections are accurately reamed, connected by tapered push-nipples, then drawn together and held permanently in place by iron rods.

HYDROSTATIC TEST. 75 lbs. per square inch.

ADVANTAGES. Easy to operate.

Easy to clean.

Honestly made.

Hard Coal, Soft Coal, Coke or Wood may be used.

Made in four series comprising twenty-seven regular sizes.

The "Viking" water-line area is about 50 per cent. in excess of its grate area — result, "Dry Steam."

RATINGS. Dimensions, Capacities, Prices, etc. The following ratings are gross and include mains, risers and branches.

Series and Number	Measurements of Fire Box at Top in inches	Fire Area and diameter of equivalent round grate		Principal Dimensions in Inches			Size of Smoke Outlet	Steam				Hot Water			
		Square Inches	Equivalent round grate	Height	Width	Length		Regular Tappings flow and return	Gross Capacity Square Feet	Height of Water Line	List Price	Regular Tappings flow and return	Gross Capacity Square Feet	Size of Expansion Pipe	List Price
15-4	17 x 18	306	19¾	57	28	31	7 ins.	1-4 in.	3100	48 ins.	$215.00	1-4 in.	5100	1 in.	$190.00
5	17 x 24	408	22¾	57	28	37	7 ins.	1-4 in.	4250	48 ins.	255.00	1-4 in.	7100	1 in.	230.00
6	17 x 30	5111	25½	57	28	43	7 ins.	1-4 in.	5500	48 ins.	295.00	2-4 in.	9000	1 in.	270.00
7	17 x 36	612	27⅞	57	28	49	7 ins.	1-4 in.	6750	48 ins.	337.50	2-4 in.	11100	1 in.	312.50
20-4	22 x 18	396	22½	65	33	31	9 ins.	1-4 in.	5100	55 ins.	275.00	2-4 in.	8250	1 in.	250.00
5	22 x 24	528	26	65	33	37	9 ins.	1-4 in.	6100	55 ins.	312.50	2-4 in.	11000	1 in.	287.50
6	22 x 30	660	29	65	33	43	9 ins.	1-4 in.	8001	55 ins.	375.00	2-4 in.	13250	1¼ in.	350.00
7	22 x 36	792	31¾	65	33	49	9 ins.	2-4 in.	11000	55 ins.	425.00	2-4 in.	16500	1¼ in.	400.00
8	22 x 42	924	34⅛	65	33	55	9 ins.	2-4 in.	12100	55 ins.	475.00	2-4 in.	20000	1¼ in.	450.00
9	22 x 48	1056	36⅝	65	33	61	9 ins.	2-4 in.	14000	55 ins.	525.00	2-4 in.	23000	1¼ in.	500.00
10	22 x 54	1148	38¼	65	33	67	9 ins.	2-4 in.	16000	55 ins.	575.00	2-4 in.	26000	1¼ in.	550.00
11	22 x 60	1320	41	65	33	73	9 ins.	2-4 in.	18000	55 ins.	625.00	2-4 in.	29000	1½ in.	600.00
30-5	32 x 24	768	31¼	70	43	37	14 ins.	2-4 in.	10001	57 ins.	425.00	2-4 in.	16500	1½ in.	400.00
6	32 x 30	960	35	70	43	43	14 ins.	2-4 in.	13500	57 ins.	512.50	2-4 in.	22500	1¼ in.	487.50
7	32 x 36	1152	38⅜	70	43	49	14 ins.	2-4 in.	17000	57 ins.	600.00	3-4 in.	28000	1¼ in.	575.00
8	32 x 42	1344	41⅝	70	43	55	14 ins.	2-4 in.	21000	57 ins.	700.00	3-4 in.	34000	1½ in.	675.00
9	32 x 48	1536	44¼	70	43	61	14 ins.	2-4 in.	24000	57 ins.	775.00	4-4 in.	40000	1½ in.	750.00
10	32 x 54	1728	46⅞	70	43	67	14 ins.	2-4 in.	27000	57 ins.	850.00	4-4 in.	45000	1½ in.	812.50
11	32 x 60	1920	49½	70	43	73	14 ins.	2-4 in.	30000	57 ins.	925.00	4-4 in.	51000	1½ in.	887.50
12	32 x 66	2112	51⅝	70	43	79	14 ins.	3-4 in.	33000	57 ins.	1000.00	4-4 in.	55000	1½ in.	962.50
13	32 x 72	2304	54⅛	70	43	85	14 ins.	3-4 in.	36000	57 ins.	1075.00	4-4 in.	61000	2 in.	1037.50
40-5	42 x 32	1344	41⅜	80	53	41	18 ins.	1-6 in.	21000	64½ ins.	700.00	1-6 in.	35000	1½ in.	675.00
6	42 x 40	1680	46½	80	53	48	18 ins.	1-6 in.	25500	64½ ins.	825.00	2-6 in.	44000	1½ in.	787.50
7	42 x 48	2016	50⅝	80	53	56	18 ins.	1-6 in.	30375	64½ ins.	950.00	2-6 in.	54000	1½ in.	912.50
8	42 x 56	2352	54¾	80	53	64	18 ins.	2-6 in.	36750	64½ ins.	1175.00	2-6 in.	64000	2 in.	1037.50
9	42 x 64	2688	58½	80	53	72	18 ins.	2-6 in.	42750	64½ ins.	1200.00	2-6 in.	74250	2 in.	1162.50
10	42 x 72	3024	62	80	53	80	18 ins.	2-6 in.	49500	64½ ins.	1325.00	3-6 in.	85500	2 in.	1262.50
11	42 x 80	3360	65	80	53	88	18 ins.	2-6 in.	56250	64½ ins.	1450.00	3-6 in.	96750	2 in.	1387.50
12	42 x 88	3696	68¼	80	53	96	18 ins.	2-6 in.	63000	64½ ins.	1575.00	3-6 in.	108000	2 in.	1512.50
13	42 x 96	4032	72	80	53	104	18 ins.	2-6 in.	69750	64½ ins.	1700.00	4-6 in.	119250	2 in.	1637.50

See also advertisement on page 199.

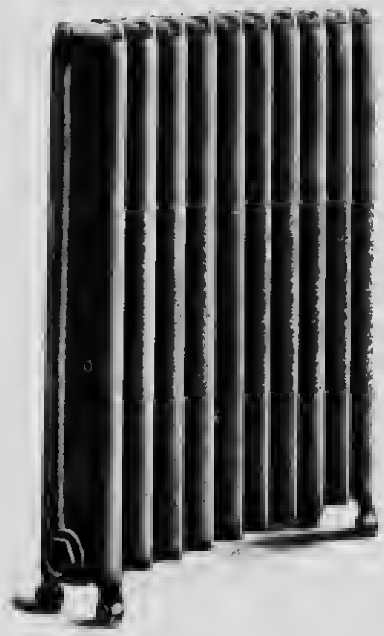
CONTINUED ON NEXT PAGE

WARDEN KING, LIMITED

EXECUTIVE OFFICES AND WORKS:
BENNETT AVE., MAISONNEUVE,
MONTREAL QUE.

TORONTO BRANCH:
200 ADELAIDE ST. WEST.

SALES OFFICE AND CITY WAREHOUSE:
151 CRAIG STREET WEST,
MONTREAL, QUE.



"VIKING" RADIATORS.

TWO COLUMN.

PRICES, CAPACITIES AND DIMENSIONS
PLAIN, SQUARE TOP. WATER AND STEAM

HEATING SURFACE

Number of Sections	*Length of Radiator per Section	15 in. in Height		18 in. in Height		22 in. in Height		26 in. in Height		30 in. in Height		34 in. in Height		38 in. in Height	
		Sq. Ft. per Section	Equivalent 1 in. Pipe	Sq. Ft. per Section	Equivalent 1 in. Pipe	Sq. Ft. per Section	Equivalent 1 in. Pipe	Sq. Ft. per Section	Equivalent 1 in. Pipe	Sq. Ft. per Section	Equivalent 1 in. Pipe	Sq. Ft. per Section	Equivalent 1 in. Pipe	Sq. Ft. per Section	Equivalent 1 in. Pipe
2	5	10	10	8	24	10	20	6	18	5½	16	4	12	4	12
3	7½	15	15	12	36	15	30	9	27	8	24	6	18	6	18
4	10	20	20	16	48	20	40	12	36	10½	32	8	24	8	24
5	12½	25	25	20	60	25	50	15	45	13	40	10	30	10	30
6	15	30	30	24	72	30	60	18	54	16	48	12	36	12	36
7	17½	35	35	28	84	35	70	21	63	18½	56	14	42	14	42
8	20	40	40	32	96	40	80	24	72	21½	64	16	48	16	48
9	22½	45	45	36	108	45	90	27	81	24	72	18	54	18	54
10	25	50	50	40	120	50	100	30	90	26½	80	20	60	20	60
11	27½	55	55	44	132	55	110	33	99	29½	88	22	66	22	66
12	30	60	60	48	144	60	120	36	108	32	96	24	72	24	72
13	32½	65	65	52	156	65	130	39	117	34½	104	26	78	26	78
14	35	70	70	56	168	70	140	42	126	37	112	28	84	28	84
15	37½	75	75	60	180	75	150	45	135	40	120	30	90	30	90
16	40	80	80	64	192	80	160	48	144	42½	128	32	96	32	96
17	42½	85	85	68	204	85	170	51	153	45½	136	34	102	34	102
18	45	90	90	72	216	90	180	54	162	48	144	36	108	36	108
19	47½	95	95	76	228	95	190	57	171	50½	152	38	114	38	114
20	50	100	100	80	240	100	200	60	180	53½	160	40	120	40	120
21	52½	105	105	84	252	105	210	63	189	56	168	42	126	42	126
22	55	110	110	88	264	110	220	66	198	58½	176	44	132	44	132
23	57½	115	115	92	276	115	230	69	207	61½	184	46	138	46	138
24	60	120	120	96	288	120	240	72	216	64	192	48	144	48	144
25	62½	125	125	100	300	125	250	75	225	66½	200	50	150	50	150
Price per Sq. Ft.		48		48		52		54		56		58		62	

* In estimating length of radiator allow ½ inch for each plug or bushing

"VIKING" RADIATORS.

FOUR COLUMN.

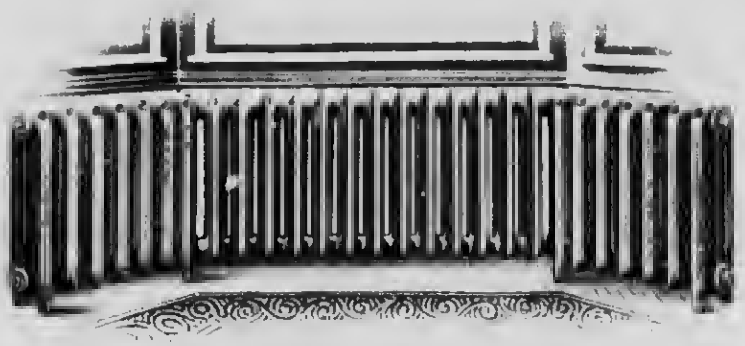
PRICES, CAPACITIES AND DIMENSIONS.
PLAIN, SQUARE TOP. WATER AND STEAM

HEATING SURFACE

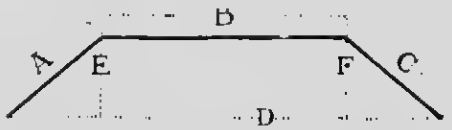
Number of Sections	*Length of Radiator per Section	42 in. in Height		18 in. in Height		22 in. in Height		26 in. in Height		30 in. in Height		34 in. in Height.	
		Sq. Ft. per Section	Equivalent 1 in. Pipe	Sq. Ft. per Section	Equivalent 1 in. Pipe	Sq. Ft. per Section	Equivalent 1 in. Pipe	Sq. Ft. per Section	Equivalent 1 in. Pipe	Sq. Ft. per Section	Equivalent 1 in. Pipe	Sq. Ft. per Section	Equivalent 1 in. Pipe
2	5½	16	58	16	48	11½	40	10½	32	8	24	5	15
3	8½	24	87	24	72	16½	60	15	48	12	36	7½	22½
4	11½	32	116	32	96	22½	80	21½	64	16	48	10	30
5	14½	40	145	40	120	28½	100	26½	80	20	60	12½	37½
6	17½	48	174	48	144	34½	120	32	96	24	72	15	45
7	20½	56	203	56	168	40½	140	37½	112	28	84	17½	52½
8	23½	64	232	64	192	46½	160	42½	128	32	96	20	60
9	26½	72	261	72	216	52½	180	48½	144	36	108	22½	67½
10	29½	80	290	80	240	58½	200	53½	160	40	120	25	75
11	32½	88	319	88	264	64½	220	58½	176	44	132	27½	82½
12	35½	96	348	96	288	70½	240	64	192	48	144	30	90
13	38½	104	377	104	312	76½	260	69½	208	52	156	32½	97½
14	41½	112	406	112	336	82½	280	74½	224	56	168	35	105
15	44½	120	435	120	360	88½	300	80	240	60	180	37½	112½
16	47½	128	464	128	384	94½	320	85½	256	64	192	40	120
17	50½	136	493	136	408	100½	340	90½	272	68	204	42½	127½
18	53½	144	522	144	432	106½	360	96	288	72	216	45	135
19	56½	152	551	152	456	112½	380	101½	304	76	228	47½	142½
20	59½	160	580	160	480	118½	400	106½	320	80	240	50	150
21	62½	168	609	168	504	124½	420	112	336	84	252	52½	157½
22	65½	176	638	176	528	130½	440	117½	352	88	264	55	165
23	68½	184	667	184	552	136½	460	122½	368	92	276	57½	172½
24	71½	192	696	192	576	142½	480	128	384	96	288	60	180
25	74½	200	725	200	600	148½	500	133½	400	100	300	62½	187½
Price per Sq. Ft.		48		48		52		56		62		68	

CONTINUED ON NEXT PAGE

"VIKING" WINDOW RADIATORS.



ANGLES FOR WATER OR STEAM.



In ordering angle radiators, an exact template should be furnished. When this is not convenient, it will be necessary to have the above diagram.

Care must be taken to give the exact measurements as indicated by letters A, B, C, D, E and F. If twin tappings are required, show their location on the diagram.

CORNER.

WATER AND STEAM.

Orders for corner radiators must state the number of sections required on each side of corner section. All corner radiators for water are tapped single connection.

HIGH LEGS.

All direct radiators of the different heights are fitted on special orders with leg sections of any height ranging from the standard to 18 inches from floor to centre of bottom tappings.

WALL BRACKETS.

Wall brackets are furnished on special orders, for hanging two, three and four column radiators. Orders should plainly state where these brackets are intended to be used, so that the radiator may be supplied without legs.

All direct radiators illustrated in this catalogue may be made up in angle, corner, high leg, wall bracket, stairway or window styles.

PRICES OF SPECIALS.

These prices have to be added to the regular price of the different radiators.

Circular or Curved per section	$1 05
Angle or Corner, per section	5 00
High Legs, up to 9 ins. inclusive, per leg section	50
High Legs, 10 to 15 ins. inclusive, per leg section	1 20
High Legs, 16 and over inclusive, per leg section	2 00
Wall Hangers for top of radiator, each	70
Wall Hangers for bottom of radiator, each	90

"VIKING" WINDOW RADIATORS.

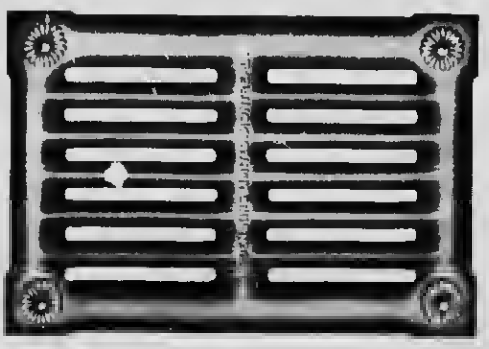
LISTS, CAPACITIES AND DIMENSIONS.

Number of Sections	Length of Radiator in Inches	Heating Surface in Square Feet. 20 in. high 6 Sq. Ft. per Section	18 in. high 6 Sq. Ft. per Section	16 in. high 4½ Sq. Ft. per Section	14 in. high 4½ Sq. Ft. per Section
2	7	12	12	9½	9½
3	10	18	18	14	14
4	13	24	24	18½	18½
5	16	30	30	23½	23½
6	19	36	36	28	28
7	22	42	42	32½	32½
8	25	48	48	37½	37½
9	28	54	54	42	42
10	31	60	60	46½	46½
11	34	66	66	51½	51½
12	37	72	72	56	56
13	40	78	78	60½	60½
14	43	84	84	65½	65½
15	46	90	90	70	70
16	49	96	96	74½	74½
17	52	102	102	79½	79½
18	55	108	108	84	84
19	58	114	114	88½	88½
20	61	120	120	93½	93½
21	64	126	126	98	98
22	67	132	132	102½	102½
23	70	138	138	107½	107½
24	73	144	144	112	112
25	76	150	150	116½	116½
Price per Sq. Foot		1.20	0.40	1.—	1.40

To find equivalent in 1 inch pipe, multiply square foot surface by 1.

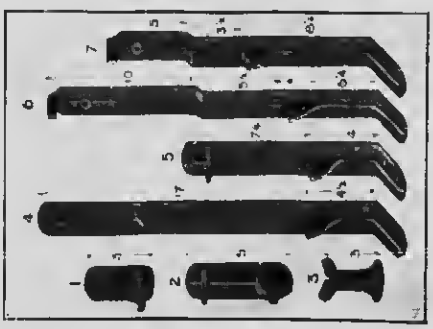
Length of radiator is estimated on the basis of 3 ins. for each section, plus 1 inch on each end for plugs and bushings.

"VIKING" WALL RADIATOR.



9 H. section, 15 inches wide by 22 inches long. List, 48c. per foot.

BRACKETS FOR WALL RADIATORS.



Other styles of Brackets to order. Also made with Ceiling Hangers to order.

THE DOMINION RADIATOR COMPANY, LIMITED

SAFFORD BOILERS & RADIATORS DRC

GENERAL OFFICES AND WORKS:
VAN HORNE AND DUFFERIN STREETS,
TORONTO, ONT.

BRANCHES AT
MONTREAL, QUE.
WINNIPEG, MAN.
VANCOUVER, B.C
ST. JOHN, N.B

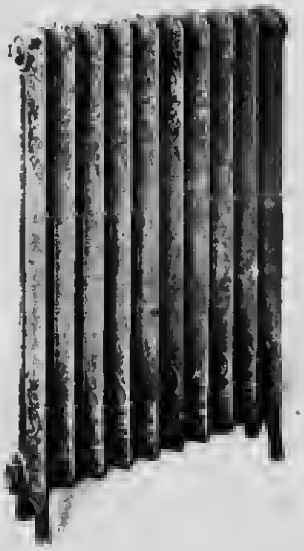
Safford Radiators adapt themselves to every possible requirement of heating and ventilating apparatus.

ZENDA SINGLE COLUMN RADIATOR.

Plain and Ornamental. Square Top. Water and Steam
Capacities and Dimensions.

ZENDA PLAIN

Number of Sections	Length (A) per Section	HEATING SURFACE 16" in Height: Sq. Ft per Section	16" in Height: Equivalent Ins Pipe	22" in Height: Sq. Ft per Section	22" in Height: Equivalent Ins Pipe	28" in Height: Sq. Ft per Section	28" in Height: Equivalent Ins Pipe	34" in Height: Sq. Ft per Section	34" in Height: Equivalent Ins Pipe	40" in Height: Sq. Ft per Section	40" in Height: Equivalent Ins Pipe
2	5	3	18	5	15	1	12	3	10	3	9
3	7½	4	27	7½	22½	6	18	5	15	4½	13½
4	10	12	36	10	30	8	24	6½	20	6	18
5	12	15	45	12½	37½	10	30	8½	25	7½	22½
6	15	18	54	15	45	12	36	10	30	9	27
7	17½	21	63	17½	52½	14	42	11½	35	10½	31½
8	20	24	72	20	60	16	48	13½	40	12	36
9	22½	27	81	22½	67½	18	54	15	45	13½	40½
10	25	30	90	25	75	20	60	16½	50	15	45
11	27½	33	99	27½	82½	22	66	18½	55	16½	49½
12	30	36	108	30	90	24	72	20	60	18	54
13	32½	39	117	32½	97½	26	78	21½	65	19½	58½
14	35	42	126	35	106	28	84	23½	70	21	63
15	37½	45	135	37½	112½	30	90	25	75	22½	67½
16	40	48	144	40	120	32	96	26½	80	24	72
17	42½	51	153	42½	127½	34	102	28½	85	25½	76½
18	45	54	162	45	135	36	108	30	90	27	81
19	47½	57	171	47½	142½	38	114	31½	95	28½	85½
20	50	60	180	50	150	40	120	33½	100	30	90
21	52½	63	189	52½	157½	42	126	35	105	31½	94½
22	55	66	198	55	165	44	132	36½	110	33	99
23	57½	69	207	57½	172½	46	138	38½	115	34½	103½
24	60	72	216	60	180	48	144	40	120	36	108
25	62½	75	225	62½	187½	50	150	41½	125	37½	112½



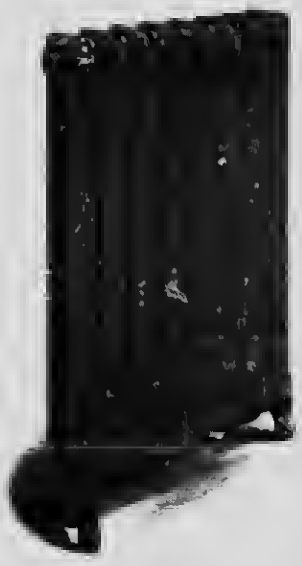
ZENDA ORNAMENTAL

FAVORITE AND DAISY TWO-COLUMN RADIATORS.

Ornamental. Round and Square Top. Water and Steam.
Capacities and Dimensions.

FAVORITE—ORNAMENTAL.

Number of Sections	Length (A) per Section	HEATING SURFACE 16" in Height: Sq. Ft per Section	16" in Height: Equivalent Ins Pipe	22" in Height: Sq. Ft per Section	22" in Height: Equivalent Ins Pipe	28" in Height: Sq. Ft per Section	28" in Height: Equivalent Ins Pipe	34" in Height: Sq. Ft per Section	34" in Height: Equivalent Ins Pipe	40" in Height: Sq. Ft per Section	40" in Height: Equivalent Ins Pipe
2	7	8	24	6	20	5½	16	4	12		9
3	10½	12	36	10	30	8	24	11	18		13½
4	14	16	48	13½	40	11	32	8	24	6	18
5	17½	20	60	16½	50	13	40	10	30	7½	22½
6	21	24	72	20	60	16	48	12	36	9	27
7	24½	28	84	23½	70	18	56	14	42	10½	31½
8	28	32	96	26½	80	21	64	16	48	12	36
9	31½	36	108	30	90	23	72	18	54	13½	40½
10	35	40	120	33½	100	26½	80	20	60	15	45
11	38½	44	132	36½	110	29	88	22	66	16½	49½
12	42	48	144	40	120	32	96	24	72	18	54
13	45½	52	156	43½	130	34	104	26	78	19½	58½
14	49	56	168	46½	140	37½	112	28	84	21	63
15	52½	60	180	50	150	40	120	30	90	22½	67½
16	56	64	192	53½	160	42½	128	32	96	24	72
17	59½	68	204	56½	170	45	136	34	102	25½	76½
18	63	72	216	60	180	48	144	36	108	27	81
19	66½	76	228	63½	190	50½	152	38	114	28½	85½
20	70	80	240	66½	200	53½	160	40	120	30	90
21	73½	84	252	70	210	56	168	42	126	31½	94½
22	77	88	264	73½	220	58	176	44	132	33	99
23	80½	92	276	76½	230	61½	184	46	138	34½	103½
24	84	96	288	80	240	64	192	48	144	36	108
25	87½	100	300	83½	250	66⅔	200	50	150	37½	112½



DAISY ORNAMENTAL.

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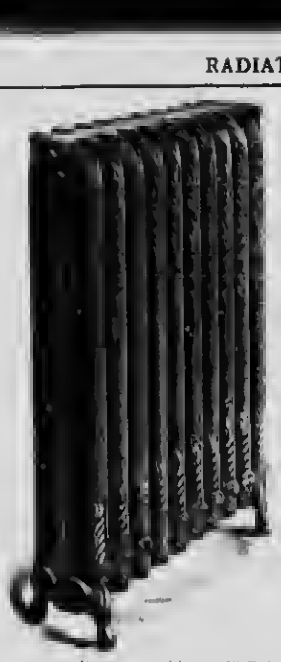
REGINA ORNAMENTAL

SAFFORD

TWO-COLUMN RADIATORS.

Ornamental. Water and Steam

Capacities and Dimensions.



PERFECT ORNAMENTAL

Number of Sections	Height	Length Approx. per Section	HEATING SURFACE											
			45" in Height		40" in Height		32" in Height		26" in Height		25" in Height		23" in Height		20" in Height	
			Sq. Ft. per Section	Equivalent 1 in Pipe	Sq. Ft. per Section	Equivalent 1 in Pipe	Sq. Ft. per Section	Equivalent 1 in Pipe	Sq. Ft. per Section	Equivalent 1 in Pipe	Sq. Ft. per Section	Equivalent 1 in Pipe	Sq. Ft. per Section	Equivalent 1 in Pipe	Sq. Ft. per Section	Equivalent 1 in Pipe
2	5	10	30	8	24	6½	20	6	18	5½	16	4½	14	4	12
3	7¾	15	45	12	36	10	30	9	27	8	24	7	21	6	18
4	10	20	60	16	48	14½	40	12	36	10½	32	9½	28	8	24
5	12¾	25	75	20	60	16½	50	15	45	13½	40	11½	35	10	30
6	15	30	90	24	72	20	60	18	54	16	48	14	42	12	36
7	17¾	35	105	28	84	23½	70	21	63	18½	56	16½	49	14	42
8	20	40	120	32	96	26½	80	24	72	21½	64	18½	56	16	48
9	22⅝	45	135	36	108	30	90	27	81	24	72	21	63	18	54
10	25	50	150	40	120	33½	100	30	90	26½	80	23½	70	20	60
11	27⅝	55	165	44	132	36½	110	33	99	29½	88	25½	77	22	66
12	30	60	180	48	144	40	120	36	108	32	96	28	84	24	72
13	32½	65	195	52	156	43½	130	39	117	34½	104	30½	91	26	78
14	35	70	210	56	168	46½	140	42	126	37½	112	32½	98	28	84
15	37½	75	225	60	180	50	150	45	135	40	120	35	105	30	90
16	40	80	240	64	192	53½	160	48	144	42½	128	37½	112	32	96
17	42½	85	255	68	204	56½	170	51	153	45½	136	39½	119	34	102
18	45	90	270	72	216	60	180	54	162	48	144	42	126	36	108
19	47½	95	285	76	228	63½	190	57	171	50½	152	44½	133	38	114
20	50	100	300	80	240	66½	200	60	180	53½	160	46½	140	40	120
21	52½	105	315	84	252	70	210	63	189	56	168	49	147	42	126
22	55	110	330	88	264	73½	220	66	198	58½	176	51½	154	44	132
23	57½	115	345	92	276	76½	230	69	207	61½	184	53½	161	46	138
24	60	120	360	96	288	80	240	72	216	64	192	56	168	48	144
25	62½	125	375	100	300	83½	250	75	225	66½	200	58½	175	50	150

REGINA PLAIN

PERFECT PLAIN SQUARE TOP.
MADE ALSO WITH ROUND TOP

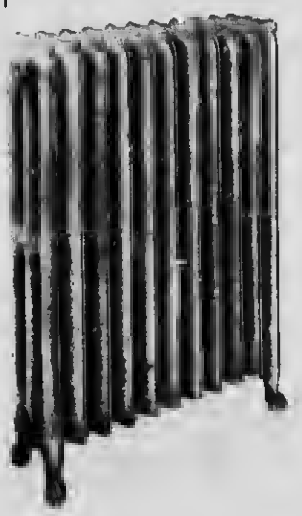
CONTINUED ON NEXT PAGE

SAFFORD TRIDENT THREE-COLUMN RADIATOR.

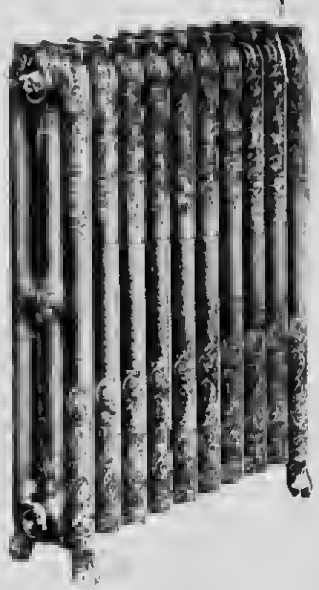
Plain and Ornamental. Square Top Water and Steam.

Capacities and Dimensions

Number of Sections	Length 2½ per Section	HEATING SURFACE											
		40" in Height		38" in Height		36" in Height		32" in Height		26" in Height		20" in Height	
		Sq. Ft per Section	Equivalent Lin. Pipe	Sq. Ft per Section	Equivalent Lin. Pipe	Sq. Ft per Section	Equivalent Lin. Pipe	Sq. Ft per Section	Equivalent Lin. Pipe	Sq. Ft per Section	Equivalent Lin. Pipe	Sq. Ft per Section	Equivalent Lin. Pipe
2	5	12	36	10	30	9	27	7½	22½	6	18	4½	13½
3	7½	18	54	15	45	13½	40½	11¼	33¾	9	27	6¾	20¼
4	10	24	72	20	60	18	54	15	45	12	36	9	27
5	12½	30	90	25	75	22½	67½	18¾	56¼	15	45	11¼	33¾
6	15	36	108	30	90	27	81	22½	67½	18	54	13½	40½
7	17½	42	126	35	105	31½	94½	26¼	78¾	21	63	15¾	47¼
8	20	48	144	40	120	36	108	30	90	24	72	18	54
9	22½	54	162	45	135	40½	121½	33¾	101¼	27	81	20¼	60¾
10	25	60	180	50	150	45	135	37½	112½	30	90	22½	67½
11	27½	66	198	55	165	49½	148½	41¼	123¾	33	99	24¾	74¼
12	30	72	216	60	180	54	162	45	135	36	108	27	81
13	32½	78	234	65	195	58½	175½	48¾	146¼	39	117	29¼	87¾
14	35	84	252	70	210	63	189	52½	157½	42	126	31½	94½
15	37½	90	270	75	225	67½	202½	56¼	168¾	45	135	33¾	101¼
16	40	96	288	80	240	72	216	60	180	48	144	36	108
17	42½	102	306	85	255	76½	229½	63¾	191¼	51	153	38¼	114¾
18	45	108	324	90	270	81	243	67½	202½	54	162	40½	121½
19	47½	114	342	95	285	85½	256½	71¼	213¾	57	171	42¾	128¼
20	50	120	360	100	300	90	270	75	225	60	180	45	135
21	52½	126	378	105	315	94½	283½	78¾	236¼	63	189	47¼	141¾
22	55	132	396	110	330	99	297	82½	247½	66	198	49½	148½
23	57½	138	414	115	345	103½	310½	86¼	258¾	69	207	51¾	155¼
24	60	144	432	120	360	108	324	90	270	72	216	54	162
25	62½	150	450	125	375	112½	337½	93¾	281¼	75	225	56¼	...



Trident Plain



Trident Ornamental

SAFFORD IDEAL FOUR-COLUMN FLUE VENTILATING RADIATOR

Plain and Ornamental. Square Top. Water and Steam.

Capacities and Dimensions.

Number of Sections	Length 4 in per Section	HEATING SURFACE											
		42" in Height		38" in Height		32" in Height		26" in Height		20" in Height		14" in Height	
		Sq. Ft per Section	Equivalent Lin. Pipe	Sq. Ft per Section	Equivalent Lin. Pipe	Sq. Ft per Section	Equivalent Lin. Pipe	Sq. Ft per Section	Equivalent Lin. Pipe	Sq. Ft per Section	Equivalent Lin. Pipe	Sq. Ft per Section	Equivalent Lin. Pipe
2	8	16½	49½	14	42	11¼	34½	8¼	25	5¼	16¼	3¼	10¼
3	9	24¾	74¼	21	63	17¼	51¾	12½	37½	8	24¾	4¾	15¾
4	12	33	99	28	84	23	69	16¾	50	11	33	6½	21
5	15	41¼	123¾	35	105	28¾	86¼	20¾	62½	13¾	41¼	8¼	26¼
6	18	49½	148½	42	126	34½	103½	25	75	16½	49½	9¾	31½
7	21	57¾	173¼	49	147	40¼	120¾	29¼	87¾	19¼	57¾	11¼	36¾
8	24	66	198	56	168	46	138	33¼	100	22	66	13	42
9	27	74¼	222¾	63	189	51¾	155¼	37½	112½	24¾	74¼	14¾	47¼
10	30	82½	247½	70	210	57½	172½	41¾	125¼	27½	82½	16¼	52½
11	33	90¾	272¼	77	231	63¼	189¾	45¾	137¾	30¼	90¾	17¾	57¾
12	36	99	297	84	252	69	207	50	150	33	99	19½	63
13	39	107¼	321¾	91	273	74¾	224¼	54¼	162¾	35¾	107¼	21¼	68¼
14	42	115½	346½	98	294	80½	241½	58½	175½	38½	115½	22¾	73½
15	45	123¾	371¼	105	315	86¼	258¾	62½	187½	41¼	123¾	24¼	78¾
16	48	132	396	112	336	92	276	67	201	44	132	26	84
17	51	140¼	420¾	119	357	97¾	293¼	71¼	213¾	47¼	141¾	27¾	89¼
18	54	148½	445½	126	378	103½	310½	75¼	225¾	49½	148½	29¼	94½
19	57	156¾	470¼	133	399	109¼	327¾	79¼	237¾	52¼	156¾	30¾	99¾
20	60	165	495	140	420	115	345	83	250	55	165	32½	105
21	63	173¼	519¾	147	441	120¾	362¼	87¼	262¼	57¾	173¼	34¼	110¼
22	66	181½	544½	154	462	126½	379½	91¼	274¼	60¼	181½	35¾	115½
23	69	189¾	569¼	161	483	132¼	396¾	95¼	286¼	63¼	189¾	37¼	120¾
24	72	198	594	168	504	138	414	100	300	66	198	39	126
25	75	206½	618¾	175	525	143¾	431¼	104¼	312¾	68¾	206¼	40¾	131¼

Ideal Plain

Ideal Ornamental

The Ideal Radiator can be supplied with Ventilating Box Bases if desired.

CONTINUED ON NEXT PAGE

FAVORITE PLAIN

SAFFORD
FAVORITE AND DAISY
FOUR COLUMN RADIATORS.

Plain and Ornamental — Round and Square Top.

Water and Steam.

FAVORITE ORNAMENTAL

Capacities and Dimensions.

Number of Sections	Height	HEATING SURFACE											
		13" in Height		18" in Height		22" in Height		26" in Height		30" in Height		32" in Height	
	Length in Ins. Per Section	Sq. Ft. per Section	Equivalent Lin. Pipe	Sq. Ft. per Section	Equivalent Lin. Pipe	Sq. Ft. per Section	Equivalent Lin. Pipe	Sq. Ft. per Section	Equivalent Lin. Pipe	Sq. Ft. per Section	Equivalent Lin. Pipe	Sq. Ft. per Section	Equivalent Lin. Pipe
2	8½	1.9½	5.8	2.6	7.8	3.3	9.9	4.0½	12	4.6	13.8	5	15
3	12½	2.9	8.7	3.9	11.7	4.9	14.7	6.0	18	6.9	20.7	7.5	22.5
4	16½	3.8½	11.6	5.2	15.6	6.5	19.5	8.0	24	9.2	27.6	10	30
5	20½	4.8½	14.5	6.5	19.5	8.1	24.3	10.0	30	11.5	34.5	12.5	37.5
6	24½	5.8	17.4	7.8	23.4	9.7	29.1	12.0	36	13.8	41.4	15	45
7	28½	6.7	20.3	9.1	27.3	11.4	34.2	14.0	42	16.1	48.3	17.5	52.5
8	32½	7.7½	23.2	10.4	31.2	13.0	39.0	16.0	48	18.4	55.2	20	60
9	37½	8.7	26.1	11.7	35.1	14.6	43.8	18.0	54	20.7	62.1	22.5	67.5
10	41½	9.6½	29.0	13.0	39.0	16.2	48.6	20.0	60	23.0	69.0	25	75
11	45½	10.6½	31.9	14.3	42.9	17.8	53.4	22.0	66	25.3	75.9	27.5	82.5
12	49½	11.6	34.8	15.6	46.8	19.4	58.2	24.0	72	27.6	82.8	30	90
13	53½	12.5½	37.7	16.9	50.7	21.0	63.0	26.0	78	29.9	89.7	32.5	97.5
14	57½	13.5½	40.6	18.2	54.6	22.6	67.8	28.0	84	32.2	96.6	35	105
15	61½	14.5	43.5	19.5	58.5	24.3	72.9	30.0	90	34.5	103.5	37.5	112.5
16	66	15.4	46.4	20.8	62.4	25.9	77.7	32.0	96	36.8	110.4	40	120
17	70½	16.4½	49.3	22.1	66.3	27.5	82.5	34.0	102	39.1	117.3	42.5	127.5
18	74½	17.4	52.2	23.4	70.2	29.1	87.3	36.0	108	41.4	124.2	45	135
19	78½	18.3½	55.1	24.7	74.1	30.8	92.4	38.0	114	43.7	131.1	47.5	142.5
20	82½	19.3½	58.0	26.0	78.0	32.4	97.2	40.0	120	46.0	138.0	50	150
21	86½	20.3	60.9	27.3	81.9	34.0	102.0	42.0	126	48.3	144.9	52.5	157.5
22	90½	21.2½	63.8	28.6	85.8	35.6	106.8	44.0	132	50.6	151.8	55	165
23	94½	22.2½	66.7	29.9	89.7	37.3	111.9	46.0	138	52.9	158.7	57.5	172.5
24	99	23.2	69.6	31.2	93.6	38.9	116.7	48.0	144	55.2	165.6	60	180
25	103½	24.1½	72.5	32.5	97.5	40.5	121.5	50.0	150	57.5	172.5	62.5	187.5

DAISY PLAIN

DAISY ORNAMENTAL.

CONTINUED ON NEXT PAGE

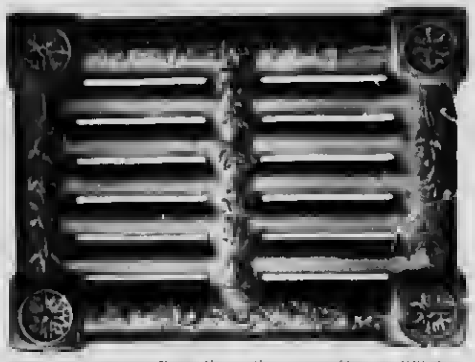
ACME FIVE COLUMN FLUE WINDOW RADIATOR.

Ornamental Square Top Steam and Steam

ACME ORNAMENTAL.

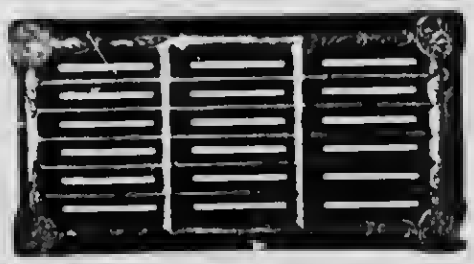
Capacities and Dimensions

Number of Sections	Length of each Section	Heating Surface									
		20 in. Height		16 in. Height		15 in. Height		13 in. Height		11 in. Height	
		Square feet Heating Surface per Section	Equivalent in 1 in. Pipe	Square feet Heating Surface per Section	Equivalent in 1 in. Pipe	Square feet Heating Surface per Section	Equivalent in 1 in. Pipe	Square feet Heating Surface per Section	Equivalent in 1 in. Pipe	Square feet Heating Surface per Section	Equivalent in 1 in. Pipe
2	6	12	10	10	8	9	7½	8	6½	7	5½
3	9	18	15	15	12	13½	11	12	10	10½	8½
4	12	24	20	20	16	18	15	16	13	14	11½
5	15	30	25	25	20	22½	18½	20	16½	17½	14½
6	18	36	30	30	24	27	22½	24	20	21	17½
7	21	42	35	35	28	31½	26	28	23	24½	20½
8		48	40	40	32	36	30	32	26½	28	23½
9		54	45	45	36	40½	33½	36	30	31½	26½
10	30	60	50	50	40	45	37½	40	33½	35	29½
11	33	66	55	55	44	49½	41	44	36½	38½	32½
12	36	72	60	60	48	54	45	48	40	42	35½
13	39	78	65	65	52	58½	48½	52	43	45½	38½
14	42	84	70	70	56	63	52½	56	46½	49	41½
15	45	90	75	75	60	67½	56	60	50	52½	44½
16	48	96	80	80	64	72	60	64	53½	56	47½
17	51	102	85	85	68	76½	63½	68	56½	59½	50½
18	54	108	90	90	72	81	67½	72	60	63	53½
19	57	114	95	95	76	85½	71	76	63½	66½	56½
20	60	120	100	100	80	90	75	80	66½	70	59½
21	63	126	105	105	84	94½	78½	84	70	73½	62½
22	66	132	110	110	88	99	82½	88	73½	77	65½
23	69	138	115	115	92	103½	86	92	76½	80½	68½
24	72	144	120	120	96	108	90	96	80	84	71½
25	75	150	125	125	100	112½	93½	100	83½	87½	74½



MAPLE LEAF—FIVE-FOOT SECTION—ORNAMENTAL.

WALL RADIATORS (FOWLER & WOLFE, PATENTED).

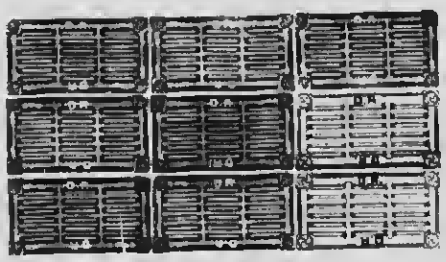


PRINCESS NINE-FOOT SECTION—ORNAMENTAL.

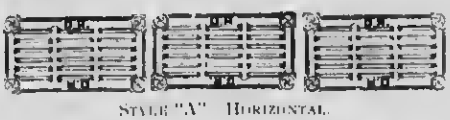
Capacities and Dimensions

Pattern	Square feet Heating surface	Equivalent in 1 in. Pipe	Length Inches	Width Inches	Thickness Inches	Distance between centres of tapping Inches	
						Front of Sections	Back of Sections
Maple Leaf, Nos. 20 and 21	5	15	17	13	3	10	14½
Victoria, No. 22	6	18	21	13	3	10	17½
Victoria, " 23	7	21	24	13	3	10	21
Princess, " 24	9	27	24	13	3¾	10	21
Ontario, " 25	9	27	24	13	3¾	10	21

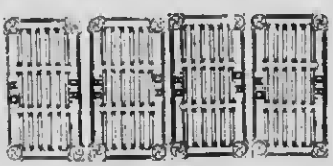
GENERAL FORMS OF ASSEMBLING.



STYLE "B"—SPECIAL



STYLE "A" HORIZONTAL.



STYLE "C"—VERTICAL.

An extra charge will be made for tiering, as shown in style "B." Any required number of sections can be assembled into Radiators in above illustrated forms. When ordering, be particular to state which style is required. Orders should be accompanied by sketches showing size and style of connections desired.

CONTINUED ON NEXT PAGE

SAFFORD
DIRECT-INDIRECT OR VENTILATING RADIATOR
WITH
NEW ADJUSTABLE BOX BASE

REGINA, TWO COLUMN. FRONT VIEW

BACK VIEW

REGINA, TWO COLUMN. REAR VIEW.

FLOOR INLET

When the air is brought through the floor to radiator (see plate A), the dimensions of opening in floor to be covered by damper in base should be as follows:

BASE	INCHES
4 Section	6 x 7
5 "	4½ x 10
6 "	4½ x 11
7 "	4½ x 11½
8 "	4½ x 13
9 "	4½ x 14
10 "	4½ x 15
11 "	4½ x 17
12 "	4½ x 20
13 "	4½ x 21
14 "	4½ x 23
15 "	4½ x 24
16 "	4½ x 26
17 "	4½ x 27
18 "	4½ x 29
19 "	4½ x 30
20 "	4½ x 32

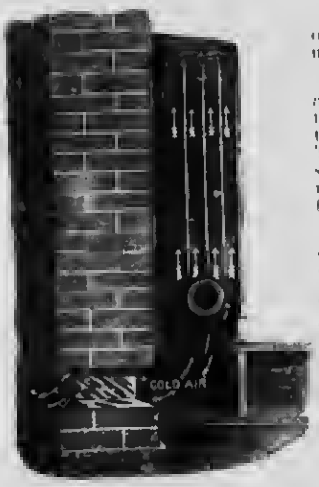
BACK INLET

When the air is brought direct through the wall into the base (see plate B), the outside measurement of collar for attaching fresh air duct is as follows:

BASE	INCHES
4 Section	7 x 7
5 "	7 x 8½
6 "	7 x 10
7 "	7 x 11½
8 "	7 x 13
9 "	7 x 14½
10 "	7 x 16
11 "	7 x 17½
12 "	7 x 19
13 "	7 x 20½
14 "	7 x 22
15 "	7 x 23½
16 "	7 x 25
17 "	7 x 26½
18 "	7 x 28
19 "	7 x 29½
20 "	7 x 31

2 and 3 COLUMN BASES			4 COLUMN BASES		
No. of Base Sections	Size of Collar for Back Air Inlet (inches)	Size of Floor Inlet Damper (inches)	No. of Base Sections	Size of Collar for Back Air Inlet (inches)	Size of Floor Inlet Damper (inches)
5	2⅜ x 5	5½ x 6½	5	2⅜ x 9	5½ x 6½
6	2⅜ x 6	5½ x 6½	6	2⅜ x 14	5½ x 11
7	2⅜ x 9	5½ x 11	7	2⅜ x 14	5½ x 11
8	2⅜ x 9	5½ x 11	8	2⅜ x 14	5½ x 18
9	2⅜ x 11	5⅜ x 11	9	2⅜ x 14	5½ x 18
10	2⅜ x 14	5½ x 11	10	2⅜ x 19	5½ x 29½
11	2⅜ x 14	5½ x 18	11	2⅜ x 19	5½ x 29½
12	2⅜ x 14	5½ x 18	12	2⅜ x 19	5½ x 30½
13	2⅜ x 14	5½ x 18	13	2⅜ x 19	5½ x 30½
14	2⅜ x 14	5½ x 18	14	2⅜ x 19	5½ x 44⅜
15	2⅜ x 19	5½ x 29½	15	2⅜ x 23	5½ x 44⅜

SAFFORD IDEAL FLUE VENTILATING RADIATOR - WATER AND STEAM.



A BOTTOM AIR INLET

Attention is directed to the peculiar advantages of this type of radiator, when equipped with the Box-Base as a ventilating medium of the direct-indirect type.

The principle of construction of the Box-Base is such that all the air necessary for ventilation may be taken from without the building by means of air conduit in wall, and distributed through the Base into the interior or flue surface of radiator. The dampers in the Base may be adjusted to reduce the air supply if the outside temperature is very low, or the dampers may be entirely closed if desired, thus converting the radiator for the time into a direct radiator.

The special features of this Box-Base are simplicity of construction, ease of operation, and splendid distribution of air supply. The Base being entirely underneath the radiator and well recessed, is not liable to damage. The front of Base may be easily removed for cleaning purposes. Dampers may be operated by slight pressure of foot.

Plate A shows view of radiator with air supply being brought up underneath radiator through floor. Plate B shows Box Base arranged for bringing air supply in at back of radiator above floor level, in which case a galvanized or sheet iron sleeve is necessary to make connection between air conduit in wall and the cast iron collar on base.

For Capacities and Dimensions, see Ideal Flue Radiator

B BACK AIR INLET.

The usual openings through walls for the above box bases are:—Up to and including 9 sections, a 3½ x 8½ inch opening; 10 sections and above, 3½ x 16 inch opening.

If desired, we can supply these bases for radiators of 7 sections to 20 sections with a flange for back air inlet 3 x 8½ inches.

CONTINUED ON NEXT PAGE

CLIMAX INDIRECT RADIATORS.

WATER AND STEAM

Length, 40 inches, height, 11 inches, width, 4 inches
Each Section contains 14 square feet of heating surface
Distance between centres of tappings is 7 inches

DATA FOR CLIMAX INDIRECT RADIATORS

Sections in Stack	Square Feet of Heating Surface	Cubic Feet for supply Square Inches	Cubic Feet for Flow and Return Inches	No. 1 Stack 36 in. high Inches	No. 2 Stack 42 in. high Inches	No. 3 Stack 48 in. high Inches	No. 4 Stack 54 in. high Inches
2	28	34	72	8 x 12	9 x 12	240	300	1,040
3	38	52	91	8 x 12	9 x 12	1,230	1,760	1,960
4	52	80	150	8 x 12	9 x 12	1,400	1,820	2,080
5	65	108	194	12 x 12	12 x 20	1,680	2,278	2,600
6	78	128	168	12 x 12	14 x 20	2,240	2,520	3,120
7	91	164	196	12 x 18	14 x 20	2,240	3,080	3,640
8	104	192	256	12 x 18	16 x 20	3,120	3,120	4,160
9	117	192	256	12 x 20	16 x 24	3,500	4,095	4,680
10	130	198	264	12 x 20	20 x 20	3,900	4,550	5,200
11	143	216	288	12 x 24	20 x 20	4,200	4,900	5,720
12	156	240	302	12 x 24	20 x 24	4,680	5,460	6,240

SCHOOL PIN INDIRECT RADIATORS.

WATER AND STEAM

STEAM SECTION

WATER SECTION

20 SQUARE FOOT SECTION—Length, 36 inches, height 14½ inches, height at connecting points, 13 inches, width each section occupies in stack, 3½ inches, distance between centres of openings, 11½ inches

15 SQUARE FOOT SECTION—Length, 34½ inches, height, 11½ inches, height at connecting points, 13½ inches; width each section occupies in stack, 2¾ inches, distance between centres of openings, 10½ inches

Sections will be shipped separately, unless orders specify that they are required assembled in stacks. When ordered assembled, they will be shipped in stacks of not more than six sections each.

NOTE—We can also supply Gold Pin Indirect Radiators containing square feet of heating surface per section. Length, 36 inches, height, 14½ inches, height at connecting point, 13 inches, width each section occupies in stack, 2½ inches, distance between centres of openings, 9 inches

DIRECTIONS FOR SETTING INDIRECT RADIATORS.

Hangers for Indirect Radiators may be cheaply and substantially constructed from ¼ inch round iron, having gimlet pointed coach screw threads or flattened ends to permit of their being fastened to joists or timbers overhead. The lower end should be formed into an eye or ring large enough to receive 1 inch or 1¼ inch pipe. These hangers should be placed one at each side of the four corners about 6 inches from the ends of stack and immediately opposite each other, so that the supporting pipe may pass through rings or eyes.

The hangers at the return end of the stack should be about ½ to ¾ inch lower than the hangers at the feed end, and, if possible, the entire stack should be inclined slightly towards the return end to insure a positive flow of the water of condensation toward the return connection.

In encasing Indirect Radiators care should be taken to provide an air chamber above the stack of at least 12 inches and a space below stack of about 6 inches.

On account of the very high rate of condensation in steam Indirects, we specially recommend the use of large size flow and return pipes.

EMPRESS HUMIDIFYING TWO-COLUMN RADIATOR.

SQUARE TOP (Patented.) WATER AND STEAM

EMPRESS HUMIDIFYING RADIATOR

This new Humidifying Radiator is a decided innovation, and, we feel sure, will commend itself to all heating engineers. The highly nickel-plated copper water pan is placed inside the radiator in such a position as to render it almost invisible, and at the same time to permit of the highest possible vaporization of the water.

The desirability of imparting moisture to the atmosphere of rooms heated by either steam or water will appeal especially to those who desire perfect hygienic conditions, and the added efficiency of the radiating surface consequent upon the increased humidity makes this radiator a most valuable addition to the "Safford" line.

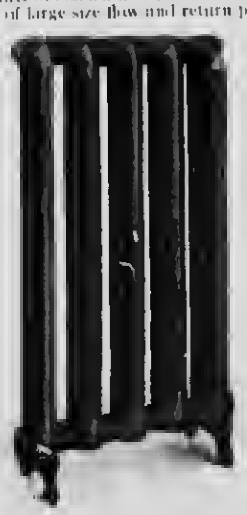
For capacities and dimensions, see "Regina" Radiator.

HOSPITAL RADIATORS.

These Radiators are made with special wide hubs, making the distance from centre to centre of loops 3½ inches and allowing easy access to the [illegible] for cleaning purposes. Where desired, Radiators can be [illegible] with extra wide hubs 5 inches centre to centre of loops. [illegible] should specify style of radiator and hub required.

Perfect Radiators may be supplied in square top pattern.

For capacities, see "Perfect" Radiator.



PERFECT (ROUND TOP) HOSPITAL RADIATOR

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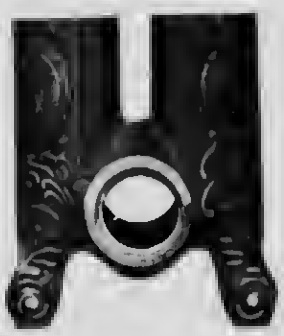
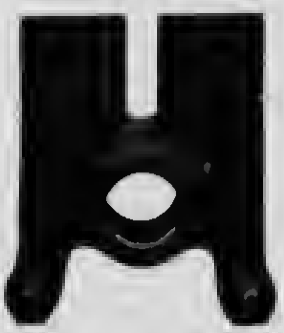
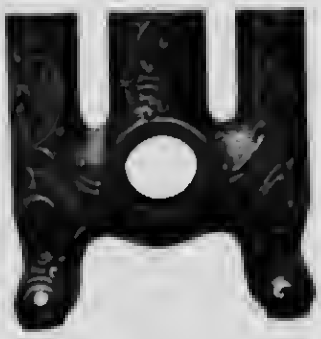
REGINA ORNAMENTAL
LOW DRIP LEG
FOR STEAM



REGINA PLAIN
LOW DRIP LEG
FOR STEAM



TRIDENT ORNAMENTAL
LOW DRIP LEG
FOR STEAM



Distance from center of opening to floor, 1¼ inches.
In a one pipe steam system the low drip section is on the front end of the radiator.
In a two pipe steam system the low drip section is on the return end of the radiator.
Safford Low Drip Radiators eliminate "water hammer."

STANDARD TAPPINGS

STEAM RADIATORS.

All Safford Steam Radiators will be tapped as per schedule below. If any special tappings are desired, they should be plainly stated on orders.

ONE PIPE STEAM RADIATORS, Direct and Direct Indirect

25 square feet and under	1 inch.
Above 25 square feet but not exceeding 60 square feet	1¼ "
Above 60 square feet but not exceeding 100 square feet	1½ "
Above 100 square feet	2 "

All one pipe steam connections are tapped left hand with eccentric tappings.

TWO PIPE STEAM RADIATORS, Direct and Direct Indirect.

50 square feet and under	1 X ¾ inch.
Above 50 square feet but not exceeding 95 square feet	1¼ X 1 "
Above 95 square feet	1½ X 1¼ "

All two pipe steam connections are tapped right hand, the tapping on return end of radiator being made eccent.

TWO PIPE STEAM RADIATORS, Indirect only:

40 square feet and under	1 X ¾ inch.
Above 40 square feet but not exceeding 80 square feet	1¼ X 1 "
Above 80 square feet but not exceeding 120 square feet	1½ X 1¼ "
Above 120 square feet	2 X 1½ "

Steam Indirect Radiators are always tapped for two pipe system.

WATER RADIATORS.

All Safford Water Radiators will be tapped as per schedule below. If any special tappings are desired, they should be plainly stated on orders.

WATER RADIATORS, SINGLE OR TWIN CONNECTIONS, all Patterns.

50 square feet and under	1 X 1 inch.
Above 50 square feet but not exceeding 100 square feet	1¼ X 1¼ "
Above 100 square feet	1½ X 1½ "

All Twin Connection Radiators are tapped left hand. All Single Connection opposite end tappings will be made with right hand threads. All Water Radiators are shipped twin connection, tapped left hand unless otherwise specified on orders.

All Wall Radiators for hot water are tapped top and bottom same end left hand, and will be shipped accordingly unless otherwise specified on orders. Wall Radiator sections are tapped 1½ inch left hand and are bushed to sizes required.

The special tappings for the various vacuum steam and pressure water systems on application.

NOTE. When using union valves or union elbows, please state this fact in ordering, so that connections may be tapped right hand.

CONTINUED ON NEXT PAGE

SAFFORD ROUND WATER BOILERS

LIST PRICES AND DATA

No.	List Price Low Base	List Price High Base	Average gross heating capacity in square feet of Radiation (Direct)		Net Water Capacity in gallons	Gross Water Capacity in gallons	Height over all	Diameter over all	Average Flue Size	Inches each way	Diameter of Steam Outlet	Approximate Weight in Pounds	Size of Crate
			Low Pressure Steam	Hot Water									
1	S	$105 00	$111 00	650	780	13	21	1 100	6 16	1	1	2	Skid
1	R	118 00	124 00	875	1050	17	28	1 100	6 16	1	1	2	Skid
2	S	140 00	147 00	1 150	1 380	23	37	1 361	1 68	1	1	2	Skid
2	R	156 00	163 00	1 400	1 680	28	45	1 361	1 68	1	1	2	Skid
3	S	176 00	185 00	1 650	1 980	33	53	1 761	1 81	1	1	2	Skid
3	R	196 00	206 00	1 900	2 280	38	61	1 761	1 81	1	1	2	Skid
4	S	220 00	231 00	2 150	2 580	43	69	1 761	1 81	1	1	2	Skid
4	R	240 00	252 00	2 400	2 880	48	77	1 761	1 81	1	1	2	Skid
5	S	264 00	277 00	2 650	3 180	53	85	2 361	2 68	1	1	2	Skid
5	R	284 00	298 00	2 900	3 480	58	93	2 361	2 68	1	1	2	Skid
6	S	308 00	323 00	3 150	3 780	63	101	2 361	2 68	1	1	2	Skid
6	R	328 00	344 00	3 400	4 080	68	109	2 361	2 68	1	1	2	Skid
7	S	352 00	369 00	3 650	4 380	73	117	2 961	3 36	1	1	2	Skid
7	R	372 00	390 00	3 900	4 680	78	125	2 961	3 36	1	1	2	Skid
8	S	396 00	415 00	4 150	4 980	83	133	2 961	3 36	1	1	2	Skid
8	R	416 00	436 00	4 400	5 280	88	141	2 961	3 36	1	1	2	Skid
9	S	440 00	461 00	4 650	5 580	93	149	3 561	3 93	1	1	2	Skid
9	R	460 00	482 00	4 900	5 880	98	157	3 561	3 93	1	1	2	Skid
10	S	484 00	507 00	5 150	6 180	103	165	3 561	3 93	1	1	2	Skid
10	R	504 00	528 00	5 400	6 480	108	173	3 561	3 93	1	1	2	Skid
11	S	528 00	553 00	5 650	6 780	113	181	4 161	4 51	1	1	2	Skid
11	R	548 00	574 00	5 900	7 080	118	189	4 161	4 51	1	1	2	Skid
12	S	572 00	599 00	6 150	7 380	123	197	4 161	4 51	1	1	2	Skid
12	R	592 00	620 00	6 400	7 680	128	205	4 161	4 51	1	1	2	Skid
13	S	616 00	645 00	6 650	7 980	133	213	4 761	5 11	1	1	2	Skid
13	R	636 00	666 00	6 900	8 280	138	221	4 761	5 11	1	1	2	Skid
14	S	660 00	691 00	7 150	8 580	143	229	4 761	5 11	1	1	2	Skid
14	R	680 00	712 00	7 400	8 880	148	237	4 761	5 11	1	1	2	Skid
15	S	704 00	737 00	7 650	9 180	153	245	5 361	5 68	1	1	2	Skid
15	R	724 00	758 00	7 900	9 480	158	253	5 361	5 68	1	1	2	Skid

Where no stock Safford Round Water Boilers Nos. 1 to 8 S. and R. are in stock, orders will be shipped the same day as received. Nos. 9 to 15 S. and R. in 2 days.

Larger Heaters should be represented to us, or to our Western Houses.

For installations requiring larger boiler capacity we recommend the use of Safford Sectional Boilers, as round boilers for the larger sizes in their class are difficult to operate and show a lower rate of efficiency in proportion to coal consumed.

RULES AND CAPACITIES

The ratings for Safford Round Water Boilers are based on the use of lignite coal, because the anthracite coals have more uniform heat making qualities than all other kinds.

RATING CONDITIONS

The ratings on Safford Boilers are based on their capacity to maintain a temperature of 170 degrees in the water in the Radiators throughout a period of eight hours on one firing. It is of course assumed that sufficient radiating surface has been allowed in the various rooms to maintain a temperature of 70 degrees Fahrenheit during zero weather. Under more severe climatic conditions a reasonable allowance should be made to provide for the additional load imposed on the Boiler. A liberal allowance has been made for mains, returns, etc., so that the ratings shown indicate the actual capacity of these Boilers in direct radiation.

When indirect radiation is to be used, not less than 25 per cent. increase over direct radiation should be figured in determining size of Boiler required.

When a pipe coil of cast iron sections is introduced into the fire pot for the purpose of heating water for domestic use, additional capacity should be figured in determining size of Boiler. Use 2 square feet of direct radiation for each gallon of water to be heated according to the capacity of the tank to which the coil or section is connected.

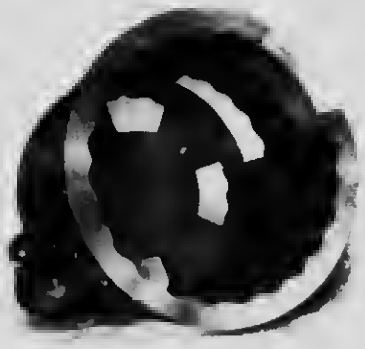
Heat results are secured by an independent Triumph Water Heater which provides ample supply for every day of the year with trifling fuel expense.

COVERINGS

Both on account of increased efficiency and greater economy we recommend that all boilers be thoroughly protected by a substantial covering of asbestos.

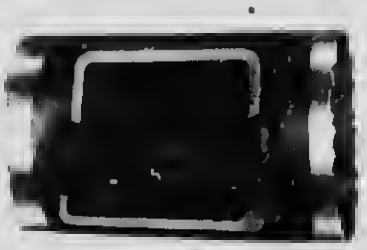
No. 6 S. High Base Boiler

SOME FEATURES OF SAFFORD ROUND WATER BOILER



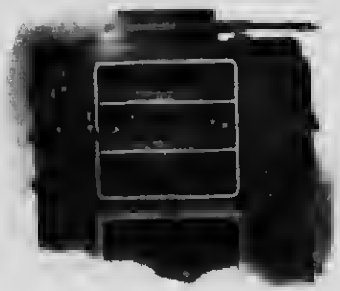
Fire pot of Safford Round Water Boiler, showing Top Crown

Intermediate Sections of Safford Round Water Boiler



Smoke Pipe Check Damper for Fuel Economy.

The Push Nipple



Showing Large Flues and Cleanout of Safford Round Water Boiler

CONTINUED ON NEXT PAGE

No. S-28-T STEAM BOILER

SAFFORD SECTIONAL BOILERS.

List Prices and Data

No. Including Sections	Price Complete	Ratings (Net) Sq. Feet Radiation	Ratings (Net) Lbs. Coal per Hour	Length Total Inches	Height Total Inches	Width Total Inches	Grate Area Sq. Feet	Average Heating Surface Sq. Feet	Outlets Inches	Smoke Pipe Inches	Ash Pit Handed Inches
S-13-4	$ 140 00	850	1,360	40⅞	34	11⅝	1·03	2 47	2 0	8	20½ x 21 ⅛
S-13-5	151 00	1,275	2,040	43⅞	34	11⅝	1·11	2 67	2 0	8	20½ x 24⅛
S-13-6	162 00	1,700	2,720	46⅞	34	11⅝	1·19	2 86	2 0	8	20½ x 27⅛
S-13-7	172 50	2,125	3,400	49⅞	34	11⅝	1·27	3 05	2 0	8	20½ x 30⅛
S-14-4	150 00	1,000	1,600	40⅞	37	14	1·34	3 21	2 0	8	20½ x 21⅛
S-14-5	161 00	1,500	2,400	43⅞	37	14	1·44	3 45	2 0	8	20½ x 24⅛
S-14-6	172 00	2,000	3,200	46⅞	37	14	1·54	3 69	2 0	8	20½ x 27⅛
S-14-7	182 50	2,500	4,000	49⅞	37	14	1·64	3 93	2 0	8	20½ x 30⅛
S-15-4	160 00	1,150	1,840	40⅞	40	17	1·65	3 96	2 0	8	20½ x 21⅛
S-15-5	171 00	1,725	2,760	43⅞	40	17	1·77	4 24	2 0	8	20½ x 24⅛
S-15-6	182 00	2,300	3,680	46⅞	40	17	1·89	4 53	2 0	8	20½ x 27⅛
S-15-7	192 50	2,875	4,600	49⅞	40	17	2·01	4 82	2 0	8	20½ x 30⅛
S-16-4	170 00	1,300	2,080	40⅞	43	20	1·96	4 70	2 0	8	20½ x 21⅛
S-16-5	181 00	1,950	3,120	43⅞	43	20	2·10	5 04	2 0	8	20½ x 24⅛
S-16-6	192 00	2,600	4,160	46⅞	43	20	2·24	5 38	2 0	8	20½ x 27⅛
S-16-7	202 50	3,250	5,200	49⅞	43	20	2·38	5 71	2 0	8	20½ x 30⅛
S-17-4	180 00	1,450	2,320	40⅞	46	23	2·27	5 45	2 0	8	20½ x 21⅛
S-17-5	191 00	2,175	3,480	43⅞	46	23	2·43	5 83	2 0	8	20½ x 24⅛
S-17-6	202 00	2,900	4,640	46⅞	46	23	2·59	6 22	2 0	8	20½ x 27⅛
S-17-7	212 50	3,625	5,800	49⅞	46	23	2·75	6 60	2 0	8	20½ x 30⅛
S-18-4	190 00	1,600	2,560	40⅞	49	26	2·59	6 21	2 0	8	20½ x 21⅛
S-18-5	201 00	2,400	3,840	43⅞	49	26	2·77	6 65	2 0	8	20½ x 24⅛
S-18-6	212 00	3,200	5,120	46⅞	49	26	2·95	7 09	2 0	8	20½ x 27⅛
S-18-7	222 50	4,000	6,400	49⅞	49	26	3·13	7 52	2 0	8	20½ x 30⅛
S-19-4	200 00	1,750	2,800	40⅞	52	29	2·91	6 98	2 0	8	20½ x 21⅛
S-19-5	211 00	2,625	4,200	43⅞	52	29	3·11	7 47	2 0	8	20½ x 24⅛
S-19-6	222 00	3,500	5,600	46⅞	52	29	3·32	7 96	2 0	8	20½ x 27⅛
S-19-7	232 50	4,375	7,000	49⅞	52	29	3·52	8 45	2 0	8	20½ x 30⅛
S-20-4	210 00	1,900	3,040	40⅞	55	32	3·23	7 75	2 0	8	20½ x 21⅛
S-20-5	221 00	2,850	4,560	43⅞	55	32	3·45	8 28	2 0	8	20½ x 24⅛
S-20-6	232 00	3,800	6,080	46⅞	55	32	3·68	8 83	2 0	8	20½ x 27⅛
S-20-7	242 50	4,750	7,600	49⅞	55	32	3·91	9 38	2 0	8	20½ x 30⅛
S-21-4	220 00	2,050	3,280	40⅞	58	35	3·55	8 52	2 0	8	20½ x 21⅛
S-21-5	231 00	3,075	4,920	43⅞	58	35	3·79	9 10	2 0	8	20½ x 24⅛
S-21-6	242 00	4,100	6,560	46⅞	58	35	4·03	9 67	2 0	8	20½ x 27⅛
S-21-7	252 50	5,125	8,200	49⅞	58	35	4·27	10 25	2 0	8	20½ x 30⅛
S-22-4	230 00	2,200	3,520	40⅞	61	38	3·87	9 29	2 0	8	20½ x 21⅛
S-22-5	241 00	3,300	5,280	43⅞	61	38	4·13	9 91	2 0	8	20½ x 24⅛
S-22-6	252 00	4,400	7,040	46⅞	61	38	4·39	10 54	2 0	8	20½ x 27⅛
S-22-7	262 50	5,500	8,800	49⅞	61	38	4·65	11 16	2 0	8	20½ x 30⅛
S-23-4	240 00	2,350	3,760	40⅞	64	41	4·19	10 06	2 0	8	20½ x 21⅛
S-23-5	251 00	3,525	5,640	43⅞	64	41	4·47	10 73	2 0	8	20½ x 24⅛
S-23-6	262 00	4,700	7,520	46⅞	64	41	4·75	11 40	2 0	8	20½ x 27⅛
S-23-7	272 50	5,875	9,400	49⅞	64	41	5·03	12 07	2 0	8	20½ x 30⅛
S-24-4	250 00	2,500	4,000	40⅞	67	44	4·51	10 82	2 0	8	20½ x 21⅛
S-24-5	261 00	3,750	6,000	43⅞	67	44	4·81	11 54	2 0	8	20½ x 24⅛
S-24-6	272 00	5,000	8,000	46⅞	67	44	5·11	12 26	2 0	8	20½ x 27⅛
S-24-7	282 50	6,250	10,000	49⅞	67	44	5·41	12 98	2 0	8	20½ x 30⅛
S-25-4	260 00	2,650	4,240	40⅞	70	47	4·83	11 59	2 0	8	20½ x 21⅛
S-25-5	271 00	3,975	6,360	43⅞	70	47	5·15	12 36	2 0	8	20½ x 24⅛
S-25-6	282 00	5,300	8,480	46⅞	70	47	5·47	13 13	2 0	8	20½ x 27⅛
S-25-7	292 50	6,625	10,600	49⅞	70	47	5·79	13 90	2 0	8	20½ x 30⅛
S-26-4	270 00	2,800	4,480	40⅞	73	50	5·15	12 36	2 0	8	20½ x 21⅛
S-26-5	281 00	4,200	6,720	43⅞	73	50	5·49	13 18	2 0	8	20½ x 24⅛
S-26-6	292 00	5,600	8,960	46⅞	73	50	5·83	13 99	2 0	8	20½ x 27⅛
S-26-7	302 50	7,000	11,200	49⅞	73	50	6·17	14 81	2 0	8	20½ x 30⅛
S-27-4	280 00	2,950	4,720	40⅞	76	53	5·47	13 13	2 0	8	20½ x 21⅛
S-27-5	291 00	4,425	7,080	43⅞	76	53	5·83	13 99	2 0	8	20½ x 24⅛
S-27-6	302 00	5,900	9,440	46⅞	76	53	6·19	14 86	2 0	8	20½ x 27⅛
S-27-7	312 50	7,375	11,800	49⅞	76	53	6·55	15 72	2 0	8	20½ x 30⅛
S-28-4	290 00	3,100	4,960	40⅞	79	56	5·79	13 90	2 0	8	20½ x 21⅛
S-28-5	301 00	4,650	7,440	43⅞	79	56	6·17	14 81	2 0	8	20½ x 24⅛
S-28-6	312 00	6,200	9,920	46⅞	79	56	6·55	15 72	2 0	8	20½ x 27⅛
S-28-7	322 50	7,750	12,400	49⅞	79	56	6·93	16 63	2 0	8	20½ x 30⅛
S-29-4	300 00	3,250	5,200	40⅞	82	59	6·11	14 66	2 0	8	20½ x 21⅛
S-29-5	311 00	4,875	7,800	43⅞	82	59	6·51	15 62	2 0	8	20½ x 24⅛
S-29-6	322 00	6,500	10,400	46⅞	82	59	6·91	16 58	2 0	8	20½ x 27⅛
S-29-7	332 50	8,125	13,000	49⅞	82	59	7·31	17 54	2 0	8	20½ x 30⅛
S-30-4	310 00	3,400	5,440	40⅞	85	62	6·43	15 43	2 0	8	20½ x 21⅛
S-30-5	321 00	5,100	8,160	43⅞	85	62	6·85	16 44	2 0	8	20½ x 24⅛
S-30-6	332 00	6,800	10,880	46⅞	85	62	7·27	17 45	2 0	8	20½ x 27⅛
S-30-7	342 50	8,500	13,600	49⅞	85	62	7·69	18 46	2 0	8	20½ x 30⅛
S-31-4	320 00	3,550	5,680	40⅞	88	65	6·75	16 20	2 0	8	20½ x 21⅛
S-31-5	331 00	5,325	8,520	43⅞	88	65	7·19	17 26	2 0	8	20½ x 24⅛
S-31-6	342 00	7,100	11,360	46⅞	88	65	7·63	18 31	2 0	8	20½ x 27⅛
S-31-7	352 50	8,875	14,200	49⅞	88	65	8·07	19 37	2 0	8	20½ x 30⅛
S-32-4	330 00	3,700	5,920	40⅞	91	68	7·07	16 97	2 0	8	20½ x 21⅛
S-32-5	341 00	5,550	8,880	43⅞	91	68	7·53	18 07	2 0	8	20½ x 24⅛
S-32-6	352 00	7,400	11,840	46⅞	91	68	7·99	19 18	2 0	8	20½ x 27⅛
S-32-7	362 50	9,250	14,800	49⅞	91	68	8·45	20 28	2 0	8	20½ x 30⅛

* Inside measurement.

For each supply outlet on top of Boiler there is a corresponding return inlet on either side.

Return tappings on 18 inch Steam Boilers are 4 inches and the two on the face of back section should be taped together and used in preference to the other inlets.

Do not bush flow pipe outlets, connect all of them the full size of main.

Above are hard coal ratings. Soft coal and wood require one size larger in each case.

For Wood Burning.—On special order, wood grates can be supplied for the 19 in., 22 in., 25 in., 28 in., and 30 in. Boilers. The 19 in. Boilers are fitted with special fire door for wood burning, 10½ x 18 in., 22 and 25 in., with 11¾ x 18 in. fire door, and 28 in. with 12¾ x 20 in. fire door.

All Boilers can be furnished with pea coal grates if desired.

SAFFORD SECTIONAL WATER BOILERS.

List Prices and Data.

No. Including Sections	Price Complete	Ratings (Net) Sq. Feet Radiation	Ratings (Net) Lbs. Coal per Hour	Length Total Inches	Height Total Inches	Width Total Inches	Grate Area Sq. Feet	Average Heating Surface Sq. Feet	Outlets Inches	Smoke Pipe Inches	Ash Pit Handed Inches
W 15-4	$ 160 00	500	1,500	40⅞	42½	27½	1 05	2 45	2 0	8	20½ x 21⅛
W 15-5	230 00	750	2,100	43⅞	42½	27½	2 00	3 30	2 0	8	20½ x 24⅛
W 15-6	250 00	900	2,700	53½	42½	27½	3 25	4 10	2 0	8	20½ x 34
W 19-5	295 00	1,000	3,000	52⅛	50	31⅛	3 32	4 00	2 0	9	20 x 24⅛
W 19-6	325 00	1,250	3,750	58	50	31⅛	4 15	5 00	2 0	9	20 x 30⅛
W 19-7	375 00	1,500	4,500	65	50	31⅛	4 98	6 00	2 0	9	20 x 47A
W 22-5	350 00	1,300	3,900	58⅛	58⅛	36	4 08	4 84	2 4	10	23½ x 24⅛
W 22-6	400 00	1,650	4,950	60⅛	58⅛	36	5 10	6 05	2 4	10	23½ x 30⅛
W 25-5	450 00	2,000	6,000	65⅛	63⅛	36	6 12	7 26	3 4	10	23½ x 34 ⅛
W 25-6	525 00	2,625	7,875	67⅛	63⅛	40⅛	6 80	8 06	2 4	11	28 x 30½
W 25-7	625 00	3,125	9,375	69⅛	63⅛	40⅛	7 48	8 87	2 4	11	28 x 34½
W 28-5	525 00	2,500	7,500	74½	67⅛	40⅛	8 16	9 72	3 4	11	28 x 30½
W 28-6	625 00	3,250	9,750	76½	67⅛	40⅛	9 52	11 34	3 4	11	28 x 34½
W 28-7	675 00	4,000	12,000	78½	67⅛	40⅛	10 88	12 96	3 4	11	28 x 38½
W 28-5	475 00	2,125	6,450	80	69⅛	44	8 24	7 33	2 4	12	30½ x 24⅛
W 28-6	562 50	2,625	8,025	88	69⅛	44	7 80	9 10	2 4	12	30½ x 30⅛
W 28-7	687 50	3,250	9,800	90	69⅛	44	9 36	10 91	2 4	12	30½ x 36⅛
W 28-8	825 00	3,875	11,175	84	69⅛	44	10 92	12 81	3 4	12	30½ x 42⅛
W 30-5	625 00	3,450	10,350	69½	70	53⅛	9 12	10 40	2 0	15	38½ x 30⅛
W 30-6	800 00	4,325	12,975	74½	70	53⅛	11 10	12 60	2 0	15	38½ x 36⅛
W 30-7	975 00	5,200	15,600	80	70	53⅛	13 08	15 00	3 0	15	38½ x 42⅛
W 30-8	1,062 50	6,050	18,150	85½	70	53⅛	15 06	18 20	3 0	15	38½ x 48⅛
W 36-6	1,187 50	6,075	20,475	100⅛	70	53⅛	18 24	20 80	4 0	15	38½ x 36⅛
W 48-6	1,300 00	7,525	23,475	95	81⅛	68	18 00	18 75	3 0	21	50½ x 36⅛
W 48-7	1,625 00	9,400	28,200	102⅛	81⅛	68	21 60	22 50	4 0	21	50½ x 42⅛
W 48-8	1,775 00	10,925	32,925	114	81⅛	68	25 20	26 25	3 0	21	50½ x 48⅛
W 48-9	2,012 50	12,450	37,350	124⅛	81⅛	68	28 80	30 00	3 0	21	50½ x 54⅛
W 48-10	2,250 00	11 125	12,375	136	81⅛	68	32 40	33 75	3 0	21	50½ x 60⅛

* Inside measurement.

For each supply outlet on top of Boiler there is a corresponding return inlet on either side.

The return tappings on the back section of the 18 inch Boilers should be taped together and used in preference to the additional return tappings on either side of the Boiler.

Above are hard coal ratings. Soft coal requires one size larger.

For Wood Burning.—On special order, wood grates can be supplied for the 19 in., 22 in., 25 in., 28 in., and 36 in. Boilers. The 19 inch Boilers are fitted with special fire door for wood burning, 10½ x 18 in., 22 and 25 in., with 11¾ x 18 in. fire door, and 28 in. with 12¾ x 20 in. fire door.

All Boilers can be furnished with pea coal grates if desired.

CONTINUED ON NEXT PAGE

SAFFORD ROUND STEAM BOILERS.

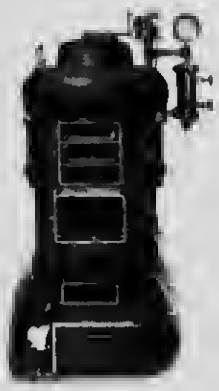
FOR HARD COAL

FUELS AND CAPACITIES

The ratings for Safford Boilers are based on the use of hard coal, because the anthracite fuels have more uniform heat making qualities than all other kinds.

No standard ratings can be made based on the soft or lignite fuels, because their heat making values differ so widely. The heat making value of anthracite coal averages about 12,000 British thermal units per pound, while some soft coals run as low as 6,000 B.t.u. per pound—some lignite fuels still lower. One cubic foot of hard coal weighs approximately 50 pounds, while a cubic foot of soft coal weighs approximately 40 pounds. Consequently, any soft coal having a heat making value equal to that of coal requires a Boiler with 25 per cent. more coal holding capacity to hold an equal weight of fuel. And when coal with a lower heat making value is to be used, a Boiler having a still greater correspondingly larger fuel holding capacity should be selected.

Caking soft coals have a much higher heating power than coals which are free burning or non-caking.



No. 2 22 S Steam Boiler (patented)
Showing Fire Pot and Cleaning Arrangements
Made with either High or Low Base

Hard Coal Boilers — LIST PRICES AND DATA — High and Low Base

No.	Price Complete		Ratings (Net)		Height to Top (with)		Diameter of Best Inches	Grate Area Square Feet	Average Fire Pot Square Feet	Heights Water Line		Outlet Inches Size Inches	Smoke Pipe Inches
	Low Base	High Base	Square Feet Radiation	Fuel Per Hour	Low Base Inches	High Base Inches				Low Base Inches	High Base Inches		
2 13 S	$215 00	$227 50	350	1 05	37	44½	33½	1 76	1 84	30	37½	2½	8
2 18 S	245 00	248 50	400	1 20	41½	48½	33½	1 76	1 84	34½	41⅛	2½	8
2 22 S	295 00	313 75	525	1 575	56½	63½	39	2 40	2 53	50½	60	3	9
2 22 S	102 50	331 25	555	1 665	63½	70½	39	2 40	2 53	50½	63½	3	9
2 25 S	325 00	350 00	625	1 875	61½	68	38	3 14	3 20	54¾	61½	3½	9
2 25 S	345 50	367 50	700	2 100	66½	73	38	3 14	3 20	59½	66½	3½	9
2 28 S	401 00	401 25	800	2 400	69½	76½	41½	4 12	4 30	56	62½	4	10
2 28 S	425 00	456 25	1 050	3 150	66½	73½	41½	4 12	4 30	60½	68½	4	10
2 31 S	491 00	548 00	1 275	3 825	66	73½	44½	4 91	5 10	55½	64½	4	10
2 31 S	525 00	565 00	1 400	4 200	73½	79½	44½	4 91	5 10	61½	70½	4	10
2 34 S	551 00	581 50	1 500	4 500	69	75	48½	5 84	6 01	59½	67½	5	11
2 34 S	581 50	625 00	1 650	4 950	75	81	48½	5 84	6 01	65½	73½	5	11

RATING CONDITIONS

The ratings for Safford Sectional Water and Steam, Safford Round Steam and Safford Premier Steam Boilers provide that all piping, mains and risers, flow and return, in addition to the direct radiation to be used, shall be figured as radiating surface in estimating the size of the Boiler required.

These ratings are for direct radiation. When any other heating surface than direct radiation is to be supplied, increased Boiler capacity must be figured accordingly to the demand in each case.

When indirect radiation is to be used, and less than 25 per cent. increase over direct radiation should be figured in determining size of Boiler required.

For installations of Hot Blast type, or where a fan is used, the additional fan or condensing power of the radiation will be increased from 3 to 6 times that of direct radiation, depending on the velocity of the air passing through same. Due allowance should be made for this special fan in estimating Boiler power required.

In rating Steam Boilers as above, it is understood that an average pressure of 2 pounds will be maintained at the Boiler. In rating Water Boilers as above, it is understood that the temperature of the water leaving the Boiler will be 180 degrees Fahrenheit.

Where a pipe coil or cast iron section is introduced into the fire pot for the purpose of heating water for domestic use, additional capacity should be figured in determining size of Boiler required, in the case of Steam Boilers, 1½ square feet of direct radiation for each gallon of water to be thus heated, and in case of Water Boilers, 2½ square feet of direct radiation for each gallon of water to be thus heated, according to the capacity of the tank to which the coil or section is connected.

Best results are secured by an independent TRIUMPH Water Heater, which provides ample supply on every day of the year with trifling fuel expense.

TRIUMPH WATER HEATERS.

No. 14 Triumph Premier Junior
Sectional View

No. 10 Triumph Junior
Sectional View

LIST PRICES AND DATA.

Style	No.	Grate Area sq. ft.	Outlets Inches	*Capacity Gallons	Price Complete
† Triumph Premier Junior	101	59	1-1½	140	$ 40 00
" " "	121	84	3-1½	200	58 00
" " "	1122	84	3-1½	250	67 00
" " "	151	1 23	3-2	335	78 00
" " "	1152	1 23	3-2	375	85 00
" " "	181	1 62	3-2	1400	102 00
" " "	1182	1 62	3-2	1500	122 00
‡ Triumph Junior	11	54	1-1½	80	28 00
" "	101	84	3-1½	190	51 00
" "	112	84	3-1½	240	61 00
" "	121	1 23	3-2	3300	71 00
" "	122	1 23	3-2	425	86 00
" "	301	1 62	3-2	1600	91 00
" "	302	1 62	3-2	1900	111 00
Triumph	10	54	1-1½	80	27 00
"	12	80	1-1½	145	33 00
"	15	1 23	1-1½	240	45 00
Triumph Laundry	110	54	1-1	100	28 00

* Actual practice has demonstrated that a heater which will raise the water from 25 to 70 degrees per hour in the storage tank is still equally large for the ordinary residence. The above ratings are based on raising the quantity of water stated in gallons 25 degrees Fahrenheit per hour for eight consecutive hours on one full charge of Hard coal as fired. In apartment buildings, barber shops, etc., where the demand is proportionately heavier, larger heater capacity must be provided.

† No. 101 is not provided with butterfly draft, but can be so equipped if ordered. None of these Heaters have an intermediate section.

‡ Nos. 10 to 15 have slab centre grates. Nos. 101 to 302 have rocking grates.

§ Equipped with Prime sections.

No fire tools are supplied with TRIUMPH Water Heaters.

No. 12 Triumph

Triumph Laundry Heater No. 110

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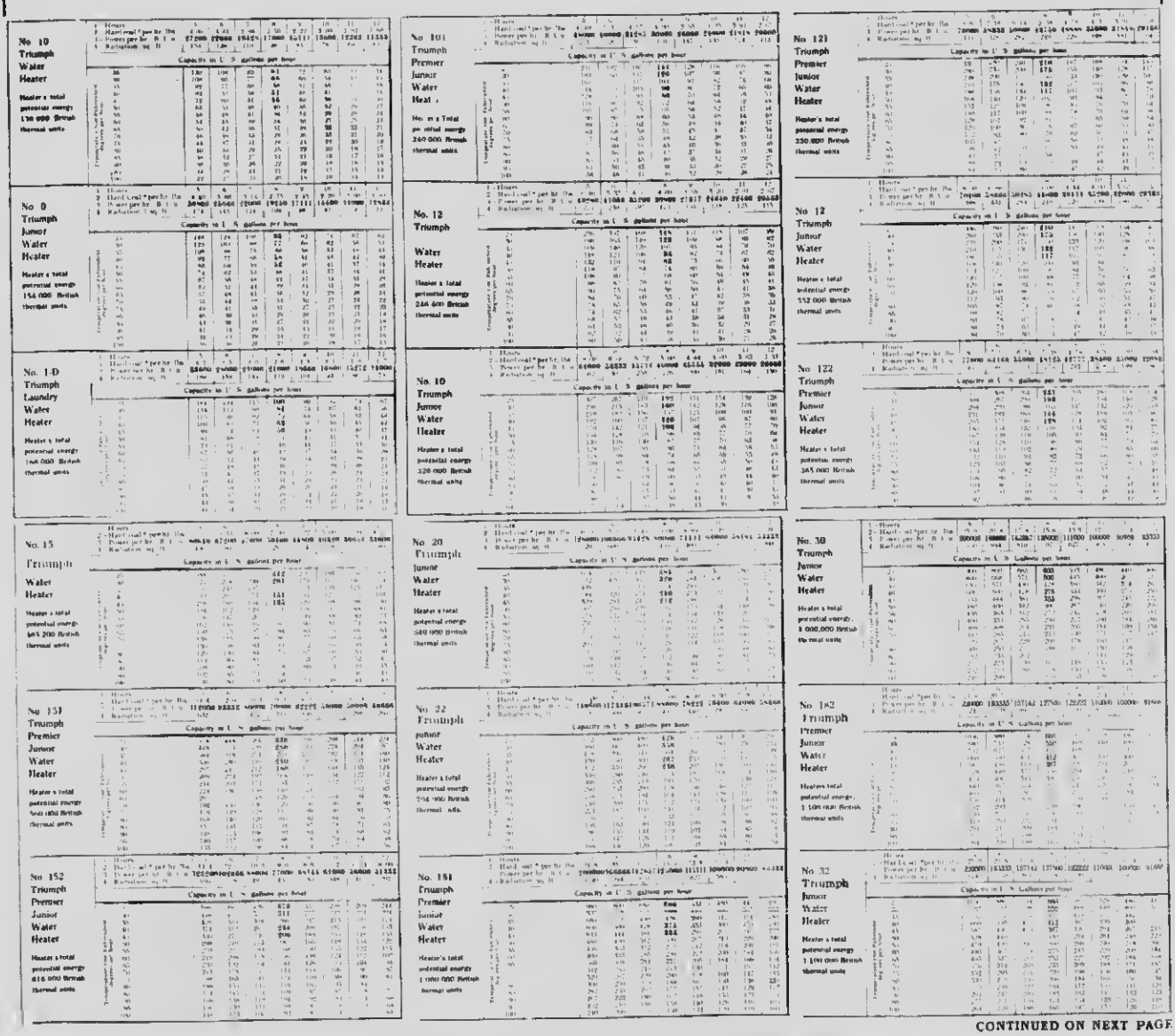
TRIUMPH WATER HEATERS.

SPECIAL WATER TEMPERATURE RATINGS.

Actual practice has demonstrated that a Water Heater which will impart from 25 to 30 degrees per hour to the water in the storage tank is sufficiently large for the ordinary residence; and for apartment buildings, in which the demand is proportionately heavier, a Heater that will impart from 40 to 45 degrees per hour. These capacities are indicated in the tables by heavy-faced figures.

It is, however, for the architect or heating contractor, who alone is familiar with all the conditions and requirements, to select from the tables the capacity of Heater needed for each specific installation. The tables are equally applicable to the heating of water for special requirements, as swimming pools, bottle washing vats, and other purposes. The figures in line 1 represent so many hours' firing from one charge of hard coal, which is the basis, because its available heating power is constant.



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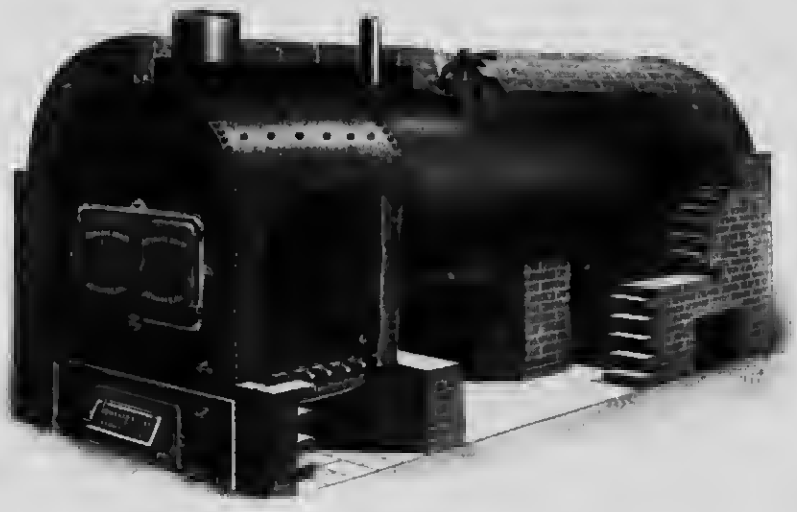
KEWANEE FIREBOX BOILERS.



An illustration of the boiler erected with a portion of brickwork removed

SPECIFICATIONS AND PRICE LIST KEWANEE FIREBOX BOILERS.

FOR STEAM AND WATER HEATING.

Number	00	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Capacity, Steam square feet	500	700	900	1000	1300	1400	1700	2000	2200	2500	3000	3500	4000	4500	5200	6200	7200	8500	9500	11500	13500	15000
Capacity, Water square feet	800	1100	1500	1800	2000	2300	2800	3300	3600	4100	4900	5700	6500	7300	8500	10100	11300	14000	15500	17100	18700	21200
Code, Steam Boiler Complete	Dandy	Date	Dagon	Dali	Dash	Dawn	Davy	Damp	Dark	Dash	Data	Dated	Dead	Deal	Debit	Debt	Devl	Dest	Drive	Demit	Dense	Dart
Code, Water Boiler Complete	Deal	Deny	Dirty	Dirt	Dingy	Dirge	Dam	Debar	Dish	Drill	Drain	Dirge	Drink	Debit	Decay	Duck	Dealt	Deity	Deflux	Delta	Demur	Dental
Price, Steam Boiler, Castings and Tools	$255	$270	$285	$300	$320	$375	$400	$435	$460	$510	$580	$630	$680	$735	$800	$935	$1200	$1430	$1500	$1600	$1800	$2000
Steam Trimmings	18	18	18	18	19	19	19	19	21	21	23	21	23	28	28	28	40	40	40	40	44	44
Price, Water Boiler, Castings and Tools	$205	$250	$295	$330	$430	$500	$435	$450	$475	$525	$575	$635	$695	$755	$880	$955	$1225	$1435	$1530	$1610	$1840	$2040
Approximate Weight pounds	150	1100	2500	2900	3700	3700	4200	4000	4800	5300	6000	7800	7400	8100	10100	11500	13200	15100	15000	18000	19800	21600

EXTRAS AND CHANGES ADD TO ABOVE LIST.

For longer Shell each foot or fraction of a foot	$11	$11	$15	$15	$15	$19	$19	$19	$21	$21	$23	$23	$32	$32	$40	$40	$50	$50	$60	$60	$70	$70
For longer Firebox including Grate, each six inches	$15	$15	$20	$20	$20	$25	$25	$25	$30	$30	$30	$30	$30	$30	$35	$35	$55	$55	$65	$65	$80	$80
Wrought iron spare rings and extra stays and braces for 100 pounds working pressure	$10	$10	$13	$13	$13	$16	$17	$18	$19	$15	$17	$80	$82	$83	$06	$71	$80	$85	$90	$95	$105	$110
Rear flue Clean out Doors and frame	$12	$12	$12	$12	$12	$16	$16	$16	$18	$18	$18	$12	$12	$20	$26	$26	$32	$32	$38	$38	$46	$46

Openings in firebox for coil, $4.00 list per Boiler.

In regular Boilers all space rings or frames are made of semi-steel, which is much stronger than cast iron

CONTINUED ON NEXT PAGE

ADDITIONAL SPECIFICATIONS KEWANEE FIREBOX BOILERS.

Number		00	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Diameter Boiler	inches	21	24	30	30	30	30	30	30	32	32	32	37	37	37	37	42	42	42	42	42	42	42
Length Boiler over all	feet	5′	5′	6′	7′	8′	7′	9′	10′	8′	10′	11′	10′	12′	11′	13′	10′	13′	15′	16′	18′	19′	18′
Width of Firebox	inches	19	19	21	24	24	30	30	30	30	30	30	42	42	42	42	48	48	48	48	48	48	48
Length of Firebox	inches	20	20	20	12	18	12	18	42	18	24	30	44	30	30	30	30	42	48	54	48	48	72
Height of Firebox	inches	30	30	15	18	18	42	42	42	42	42	42	42	42	42	42	42	48	48	48	48	48	48
Heating Surface	square feet	75	98	116	137	145	196	171	200	237	290	343	390	432	495	555	700	781	862	971	1095	1195	1375
Square Feet of Steam Capacity as 1 for each square foot of heating surface		11.8	11	9.7	9.6	8.2	9.1	9.6	9.7	8.8	8.4	8.7	8.9	9.11	9.11	8.11	8.8	8.5	8.8	8.8	8.8	8.8	8.8
Area of Grate	square feet	2.10	3.4	3.3	5.3	6.3	6.7	8.6	9.2	9.8	11.10	12.8	12.8	14.6	16.1	18.2	20.6	22.8	28.11	28.4	28.11	30.7	33.3
Square Feet of Heating Surface for each square foot of grate		28	29	32	25	23	28	28	28	27	27	28	30	30	30	32	34	34	30	28	30	32	40
Diameter of Breeching	inches	10	10	12	14	16	16	18	18	20	20	22	22	24	24	28	28	32	32	32	36	36	36
Diameter of Stack	inches	10	10	12	12	12	14	16	16	18	18	20	20	22	22	26	26	30	30	30	30	34	34
Minimum Height of Stack	feet	30	30	30	30	30	30	30	35	35	35	35	50	50	50	50	55	55	55	60	60	60	60
Diameter of Stack for 2 Boilers	inches									24	26	28	28	30	32	34	34	36	36	36	38	40	42
Minimum Height of Stack for 2 Boilers	feet									50	50	55	50	50	50	55	60	60	70	70	70	70	70
Size of Steam Opening	inches	2½	2½	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Size of Return	inches	1	1	2½	2½	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Size of Safety Valve	inches	1¼	1¼	1½	1½	2	2	2	2	2½	2½	2½	2½	2½	3	3	3	3½	3½	3½	3½	4	4
Number and Size of Supply and Return Openings for Water	inches	1-4	1-4	1-6	1-6	1-6	1-6	1-6	1-6	2-5	2-6	2-6	2-6	2-6	2-7	2-7	2-7	2-7	2-8	2-8	2-10	2-10	2-10
Height of Water Line	inches	48	48	51	51	53	59	59	59	61	61	61	65	65	65	67	67	75	75	80	80		85
Height from Floor to Top of Brick Work	inches	64	64	70	70	70	77	77	77	83	83	83	100	101	101	101	106	108	108	113	113	120	120

Boilers No. 15 and larger have two single Fire Doors, and are made with Clinker Doors

RATINGS.

The rated capacity of "KEWANEE" Firebox Boilers, as printed in this advertisement, is the number of square feet of direct radiating surface for which the boilers will provide, if the radiators installed are ample to heat the building.

The boilers will positively do what they are rated to do.

The tables are based on a standard for steam of 2 pounds pressure at the boiler, and for water on a mean temperature of 180 degrees Fahrenheit as the water leaves the boiler.

SPECIFICATIONS AND PRICE LIST KEWANEE SMOKELESS FIREBOX BOILERS.

FOR STEAM AND WATER HEATING.

Number		104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Capacity, Steam	square feet	1800	1900	2200	2500	2900	3100	3800	4300	5000	5800	7000	8200	9500	10500	12000	13000	15000
Capacity, Water	square feet	2600	3100	3600	4100	4700	5300	6200	7200	8200	9500	11400	13400	15500	17000	19000	21000	24500
Code Steam Boiler complete		Heal	Heap	Hear	Heck	Heel	Help	Hern	Hen	Henna	Heel	Herl	Herp	Herg	Hern	Herol	Heron	Hers
Code Water Boiler complete		Hole	Hoe	Hill	Hinel	Hinge	Hint	Hip	Hire	Hisk	Hiss	Hit	Hitch	Hive	Hiz	Hdl	Hing	Hick
Price, Steam Boiler with Castings and Tools		$5501	$6201	7054	$7701	$7701	$8401	$9101	$10001	$10063	$11001	$14001	$17001	$18401	$20401	$23001	$25401	$28001
Steam Trimmings		31	31	31	34	34	34	34	34	34	34	34	41	41	41	41	44	44
Price, Water Boiler, with Castings and Tools		$6015	$6815	$7701	$8425	$8785	$9555	$10155	$11015	$11084	$12101	$15401	$17725	$18785	$20801	$23001	$25901	$28401
Approximate Weight	pounds	4800	5300	5700	6100	6700	7200	8400	9100	9800	12100	14000	16000	17400	19400	21000	23400	27100

EXTRAS AND CHANGES ADD TO ABOVE LIST.

For Longer Shell, each foot or fraction of a foot		$19	$19	$19	$23	$21	$21	$12	$12	$12	$40	$40	$50	$50	$60	$60	$50	$70
Regular boilers larger than																		
Wrought Iron Spare Rings and extra Caps and Bases for 100 pounds Working Pressure		$68	$70	$72	$78	$82	$86	$92	$96	Cu. ft. 4 made with wrought iron rings								
										$106	$113	$125	$90	$100	$107	$115	$118	$135

Openings in firebox for col. $4 on list per Boiler

CONTINUED ON NEXT PAGE

KEWANEE SMOKELESS FIREBOX BOILERS

ADDITIONAL SPECIFICATIONS KEWANEE SMOKELESS FIREBOX BOILERS.

Number		104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Diameter Boiler	inches	30	30	30	32	32	32	38	42	42	42	42	48	48	48	48	72	72
Length, Boiler, over all	feet, inches	8 7	10 2	11 7	9 10	11 1	12 11	12 1	11 10	13 4	15 10	18 1	12 10	20 1	18 1	20 1	13 1	20 4
Width of Firebox	inches	44	44	44	46	46	46	46	52	52	58	58	52	52	58	58	58	58
Length of Firebox	inches	48	52	57	54	66	66	66	72	78	78	84	90	96	90	96	96	102
Heating Surface	square feet	192	243	290	252	294	348	384	432	504	588	672	735	864	968	1008	1155	1440
Square Feet of Steam Capacity as rated for each square foot of heating surface		8 8	8 0	8 8	9 0	9 0	9 0	9 8	9 8	10 0	10 0	10 1	11 1	11 0	10 8	11 0	11 2	11 1
Area of Upper Grate	square feet	5 8	7 1	8 1	8 8	10 0	11 1	11 7	13 1	14 0	17 0	19 0	21 0	23 2	23 1	28 8	28 4	41 1
Square Feet of Heating Surface for each square foot of grate		33	30	36	30	29	31	33	33	36	34	35	35	37	42	35	40	35
Diameter of Breeching	inches	20	20	22	22	22	24	24	27	27	30	30	24	30	30	36	36	36
Diameter of Stack	inches	18	18	20	20	20	22	24	24	24	28	28	32	32	34	34	36	36
Minimum Height of Stack	feet	40	40	40	50	50	50	50	55	55	60	60	60	60	70	70	70	70
Diameter of Stack for two Boilers	inches				28	28	30	30	32	32	34	36	38	38	40	42	44	48
Minimum Height of Stack for two Boilers	feet				60	60	60	60	60	60	70	70	70	70	75	80	80	80
Size of Steam Opening (inlet)	inches	4	4	4	6	6	6	6	6	6	7	7	7	7	8	8	8	8
Size of Return (inlet)	inches	3		4	4	4	4	5	5	5	5	5	5	5	6	6	6	6
Size of Safety Valve	inches	2	2	2	2½	2½	2½	2½	2½	3	3	3	3½	3½	3½	3½	4	4
Number and Size of Supply and Return Openings for Water	inches	2 5	2 5	2 10	2 10	2 10	2 10	2 10	2 7	2 7	2 7	2 7	2 8	2 8	2 10	2 10	2 10	2 10
Height of Water Line	inches	59	59	59	61	61	61	65	65	65	67	67	75	75	80	80	86	86
Height from Floor to Top of Brick Work	inches	76	76	76	82	82	82	91	89	89	93	93	107	107	111	113	119	119

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KEWANEE GARBAGE - BURNERS

Copyright 1911, by Kewanee Boiler Co.
Patented: Jan. 3, 1905, Dec. 12, 1905, Oct. 19, 1909, Aug. 16, 1910.
THE KEWANEE WATER HEATING GARBAGE BURNER
TYPE A.

TABLE OF DIMENSIONS AND PRICE LIST
TYPE A

The following prices include *base, clean-out plug, and hot bed*

Number		00	11	12
Cipher		Gax	Gaze	Gear
Number of Gallons it will raise 80° per hour		400	600	850
Number of Apartments it will supply		2 to 4	6 to 9	10 to 13
Height over all	inches	58	64	64
Height to Bottom of Garbage Door	inches	48	52	57
Size of Garbage Door	inches	10 X 14	12 X 18	12 X 18
Size of Fire Door	inches	7 X 9	7 X 9	7 X 9
Diameter of Grates	inches	12	16	20
Diameter of Heater	inches	17	21	25
Number and Size Flow Openings	inches	2 - 1"	2 - 2	2 - 2
Number and Size Return Openings	inches	2 - 1"	2 - 2	2 - 2
Diameter Smoke Outlet	inches	6	8	8
Diameter Floor Space	inches	22	25	30
Shipping Weight	pounds	700	900	1000
List Price		$128	$154	$200

Copyright, 1911, by Kewanee Boiler Co.
Patented: Jan. 3, 1905, Dec. 12, 1905, Oct. 19, 1909, Aug. 16, 1910.
THE KEWANEE WATER HEATING GARBAGE BURNER
TYPE D.

TABLE OF DIMENSIONS AND PRICE LIST
TYPE D

The following prices include *base, clean-out plug, and hot bed*

Number		11	12	15	16	17	18	19	20
Cipher		Gax	Gam	Gale	Gamy	Gang	Gap	Garb	Gash
Approximate Number of Apartments it will supply		2 to 4	4 to 6	6 to 9	9 to 15	15 to 22	22 to 30	30 to 36	36 and larger
Number of Gallons it will raise 80° per hour		400	600	900	1500	2,000	2,500	3,000	4,000
Height over all	inches	56	56	56	60	56	56	56	56
Height to bottom of Garbage Door	inches	43	43	43	44	44	44	44	44
Size of Garbage Door (diameter)	inches	12 X 14	12 X 16	12 X 16	16	16	16	16	16
Size of Fire-Door (diameter)	inches	12	14	14	14	14	14	14	14
Width of Grates	inches	16	18	18	24	24	30	36	36
Length of Grates	inches	16	18	24	24	30	36	42	48
Size and Number, Flow	inches	1 - 2	1 - 2	1 - 2	1 - 2½	3 - 2½	1 - 2½	1 - 3	1 - 3
Size and Number, Return	inches	1 - 2	1 - 2	1 - 2	1 - 2½	1 - 2½	1 - 2½	1 - 3	1 - 3
Width of Heater	inches	22	24	24	30	30	30	36	36
Length of Heater	inches	22	24	30	36	36	42	48	54
Size of Smoke Outlet (diameter)	inches	8	8	8	10	10	10	12	12
Floor Space Occupied	inches	27 X 27	29 X 29	29 X 35	35 X 35	35 X 41	35 X 47	41 X 53	41 X 59
Shipping Weight	pounds	1,000	1,200	1,500	1,800	2,000	2,200	2,700	3,000
List Price		$180	$214	$244	$274	$318	$350	$406	$490

CONTINUED ON NEXT PAGE

STANDARD TABASCO TANKS.

Tested to 100 pounds hydrostatic pressure, and for use where water-working pressure does not exceed 115 pounds. Regularly made with openings so that they may be used horizontally or vertically. Manholes, handholes, and coils furnished only when specially ordered. We recommend that tanks containing coils be made with a manhole.

PRICE LIST AND SPECIFICATIONS.

Nominal Capacity Gallons	Diameter Inches	Length Feet	Approximate Weight Pounds	Size Openings Inches	Price Tank Plain	Price Tank Galvanized	Regular Coils Built in Tank: Size Coil in Horizontal Tank Inches	Price Coils Plain	Price Coils Galvanized	Price Coils Brass or Copper
100	30	1	240	1½	$ 14 00	$ 57 00	1 pipes 1 in	$12 00	$14 00	
84	30	4	360	1½	14 00	61 00	4 " 1 "	12 00	15 00	
100	30	1	100	1½	17 00	61 00	1 " 1½ "	14 00	17 00	
150	30	6	450	1½	50 00	109 00	1 " 1½ "	14 00	17 00	
120	30	4	360	1½	42 00	74 00	3 " 1½ "	16 00	19 00	
150	30	1	120	2	34 00	70 00	1 " 1½ "	14 00	17 00	
180	30	6	180	2	60 00	90 00	1 " 1½ "	14 00	17 00	
240	30	8	540	2	84 00	97 00	4 " 1½ "	16 00	19 00	
250	30	7	600	2	70 00	100 00	1 " 1½ "	18 00	21 00	
300	30	8	1060	2	72 00	117 00	1 " 1½ "	20 00	24 00	
118	30	6	530	2	84 00	140 00	1 " 1½ "	20 00	24 00	
119	30	7	840	2	90 00	140 00	1 " 1½ "	22 00	24 00	
420	30	8	900	2	96 00	150 00	1 " 1½ "	24 00	28 00	
424	30	10	1060	2	105 00	170 00	1 " 1½ "	28 00	34 00	
450	34	11	890	2	114 00		1 " 1½ "	30 00	34 00	
396	34	7	1000	2	110 00		4 " 1½ "	22 00	24 00	
375	34	8	1080	2	116 00		4 " 1½ "	24 00	28 00	
530	34	10	1400	2	138 00		4 " 1½ "	28 00	34 00	
805	34	14	1440	2	190 00		4 " 1½ "	34 00	45 00	
1009	34	11	1840	2	156 00		4 " 1½ "	40 00	50 00	

Prices on application

Flanged openings add to list for each opening: 2-inch, or 2½-inch, $2 00. 3-inch, or 3½-inch, $6 00. 4-inch, $7 00. 5-inch, $7 00. Manhole in head, $14 00. In shell, $24 00. Manhole in head or shell, $4 00.

HEAVY CAST IRON STANDS FOR VERTICAL TANKS

Diameter of Tank	30	34	36	40	44
Price Stand	$8 00	$10 00	$13 00	$15 00	$20 00

KEWANEE AIR RECEIVERS.

We use steel of 60,000 pounds tensile strength in the shell and heads of all Air Receivers. Shell seams are lap joint, double-riveted, circular seams single-riveted. Heads are dished to a radius equal to the diameter of the shell, making an exceptionally strong receiver, which is tested to 175 pounds hydrostatic pressure, and insures it being safe and tight under 115 pounds working pressure. Receivers larger in diameter than 30 inches are regularly made with a manhole.

DIMENSIONS OF FLUMMIN SIZES

Diameter, Inches	Length, Feet	Thickness Shell, Inches	Thickness Heads, Inches	Size Safety Valve Tapping, Inches	Weight, Pounds	Price
30	6	4-16	4-8	1¼	640	$ 56 00
30	8	4-16	4-8	1¼	800	87 00
36	6	¼	4-8	1¼	1000	90 00
36	8	¼	4-8	1¼	1200	110 00
48	10	¼	5-8	1¼	1150	145 00
42	6	¼	7-16	2	1148	145 00
42	8	¼	7-16	2	1500	143 00
42	10	¼	7-16	2	2000	169 00
48	12	¼	7-16	2½	2050	220 00
48	14	¼	6-16	2½	2950	310 00
54	16	¼	7-16	2½	4450	390 00

EXTRA HEAVY TABASCO TANKS.

Tested to 150 pounds hydrostatic pressure, and for use where water-working pressure does not exceed 100 pounds, otherwise arranged the same as Standard Tanks listed on opposite page. For greater pressure, prices and specifications will be submitted on application.

PRICE LIST AND SPECIFICATIONS.

Nominal Capacity Gallons	Diameter Inches	Length Feet	Thickness Shell Inches	Thickness Flanges Head Inches	Thickness Flanges Throat Inches	Approximate Weight Pounds	Size Openings Inches	Price	Coils Built in Tank
120	24	5	4-16	5-16	5-16	700	1	$ 48 00	
140	24	6	4-16	5-16	5-16	840	1	62 00	
180	30	5	4-16	5-16	3-8	900	1	80 00	
230	30	6	4-16	5-16	3-8	1050	2	91 00	
240	30	7	4-16	5-16	3-8	1200	2	82 00	
295	30	8	4-16	5-16	3-8	1350	2	85 00	
117	36	4	¼	5-16	3-8	900	2	95 00	
205	36	7	¼	5-16	3-8	1080	2	101 00	
220	36	8	¼	5-16	3-8	1180	2	111 00	
345	36	10	¼	5-16	3-8	1400	2	128 00	
110	42	4	¼	⅜	7-16	1420	2	111 00	
190	42	7	¼	⅜	7-16	1850	2	141 00	
275	42	8	¼	⅜	7-16	1850	2	111 00	
240	42	10	¼	⅜	7-16	1850	2	141 00	
805	42	14	¼	⅜	7-16	2000	2	171 00	
1000	42	14	¼	⅜	7-16	2400	2	191 00	
340	48	8	¼	⅜	7-16	1800	1	168 00	
475	48	10	¼	⅜	7-16	2100	1	185 00	
1100	48	14	¼	⅜	7-16	3400	1	209 00	
1300	48	14	¼	⅜	7-16	3500	1	240 00	

Prices on larger tanks on application.

For EXTRA price of flanged openings, manholes, handholes, and stands, see bottom of opposite table.

PRESSURE AND STORAGE TANKS.

FOR OIL, WATER, ETC.

We do not attempt to give all of the different styles and sizes of tanks in the following list. These tanks can be built for all purposes and pressures, and of any size. In making inquiry for prices and specifications, always give the purpose for which the tank is to be used, the pressure to be carried, and the number of gallons capacity. Tanks listed below are for pressures up to 100 pounds.

Size Tanks In.	Ft.	Thickness Shell Inches	Thickness Head Inches	Weight Pounds	Capacity Gallons
48 x 8		¼	5-16	1700	1500
48 x 10		¼	7-16	2000	1910
48 x 12		¼	7-16	2300	1140
48 x 14		¼	7-16	2500	1400
48 x 16		¼	7-16	2600	1500
48 x 18		¼	7-16	2800	1700
48 x 20		¼	7-16	3000	1880
48 x 24		¼	7-16	3300	2250
54 x 12		5-16	7-16	2500	1400
54 x 14		5-16	7-16	2900	1650
54 x 16		5-16	7-16	3300	1890
54 x 18		5-16	7-16	3500	2130
54 x 20		5-16	7-16	3700	2380
54 x 24		5-16	7-16	4000	2850
60 x 20		5-16	7-16	4000	2620
60 x 24		5-16	7-16	4500	3150

Size Tanks In.	Ft.	Thickness Shell Inches	Thickness Head Inches	Weight Pounds	Capacity Gallons
48 x 28		¼	5-16	3800	3290
60 x 24		5-16	5-16	4750	3670
60 x 28		5-16	⅜	5300	4280
72 x 24		5-16	⅜	5300	4410
72 x 28		5-16	⅜	6250	5140
72 x 30		5-16	⅜	6600	5870
72 x 32		5-16	⅜	7000	6600
72 x 36		5-16	⅜	7800	7350
84 x 24		5-16	⅜	6000	5140
84 x 28		5-16	⅜	7000	6000
84 x 30		5-16	⅜	7500	6420
84 x 32		5-16	⅜	8000	6850
84 x 36		5-16	⅜	8900	7700
96 x 24		5-16	⅜	6800	5870
96 x 28		5-16	⅜	7900	6850
96 x 30		5-16	⅜	8500	7340
96 x 32		5-16	⅜	9000	7820
96 x 36		5-16	⅜	10000	8800

Manholes and flanges can be located where desired.

PEASE FOUNDRY COMPANY, LIMITED

MANUFACTURERS OF "ECONOMY" HEATERS.

GENERAL OFFICES, 118 KING STREET EAST, TORONTO, CANADA.

AGENCIES:

PEASE WESTERN FOUNDRY, LIMITED, WINNIPEG. PEASE PACIFIC FOUNDRY, LIMITED, VANCOUVER.
PEASE FOUNDRY CO., LIMITED, HAMILTON.

PRODUCTS. HOT WATER AND STEAM BOILERS, COMBINATION HEATERS, HEATERS AND VENTILATORS FOR PUBLIC BUILDINGS, WARM AIR FURNACES, REGISTERS, VENTILATORS, ETC.

PEASE "ECONOMY" STEAM HEATER AND VENTILATOR.

For installation in Schools, Churches, Halls, or wherever it is desired to heat with direct low-pressure steam, and at the same time introduce large volumes of fresh tempered air for ventilation.

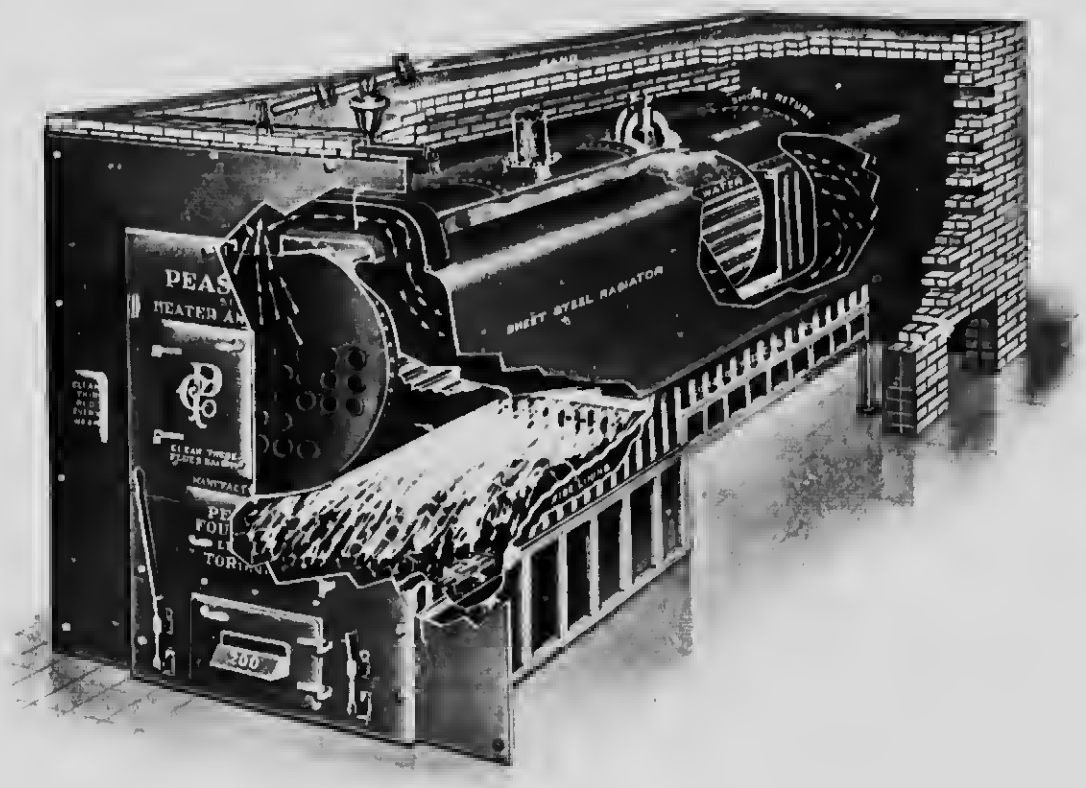


Illustration showing fire travel and details of construction

WHAT IT IS. This heater is used in connection with low pressure gravity single-pipe circuit or with two pipe steam systems. With it rooms, assembly halls, corridors, etc., are heated by direct steam and at the same time sufficient tempered air is provided for ventilating purposes. This does away entirely with the use of indirect steam radiators and means the saving of at least 33⅓ per cent. in fuel bills, as all of the indirect work is taken care of by surfaces heated with units that are wasted in the boiler room or through the smoke flue in standard boiler construction. It is designed for use in connection with gravity system of heating and ventilation, but is constructed so as to permit of installation in conjunction with a steel plate blower to promote forced circulation of air, vacuum system, thermostatic control devices, etc.

DETAILS OF CONSTRUCTION. The low parts of heater are all cast iron, the sides of the fire-box being corrugated and fitted with heavy linings so constructed as to feed hot air into the fire on all sides of, as well as above, the burning fuel, thereby insuring perfect combustion. An oscillating and dumping grate that actually sifts its own ashes is an important feature. A horizontal tubular boiler, tested to 100 lbs. pressure, constructed to meet our special requirements, and built to conform with the latest patterns of low-pressure steam boilers, is suspended immediately above the fire-box in such a way as to expose at least two-thirds of its circumference to the direct rays of the heat. The shell of this boiler is made of the best ¼-inch boiler plate, and the heads of ⅜-inch boiler plate. Tempered air for ventilation is provided by two steel radiators with cast iron smoke connections on each end, which extend along the entire length of the heater on both sides. The fire travel is first to the rear, under the boiler, then back to the front through boiler tubes, then the smoke and heat units divide and pass into the radiators on either side of the boiler, which transmit the heat into the surrounding air currents, but conduct the smoke to the chimney flue at the rear of the heater.

RESULTS. Since this heater was placed on the market some ten years ago, it has done excellent work in a large number of localities both in Ontario and in the West. We will be pleased to mail on request reports received from numerous School Boards and others giving valuable information about fuel consumption, heat distribution and ventilation.

HEATING PLANS. Owing to the special construction of heaters, we do not issue tables of capacities, but we are always prepared on short notice to furnish, for the consideration of architects, heating plans and specifications. Engineering Departments are maintained in our Toronto and Winnipeg offices for this purpose.

CONTINUED ON NEXT PAGE

"ECONOMY" HOT WATER BOILER.

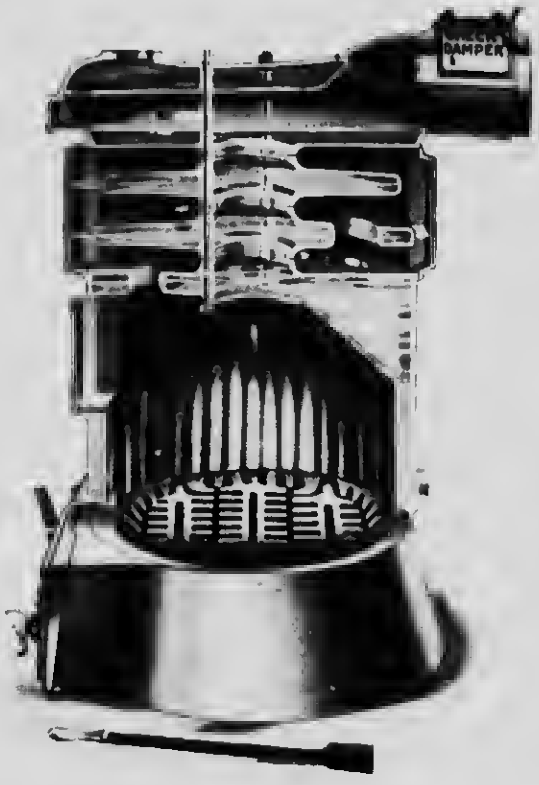


Illustration with Two Intermediate Sections. Sectional View Showing Grates, Deep Corrugated Firepot, Centre Waterway and Fire Travel.

SPECIAL FEATURES

Water ways are correctly proportioned for free circulation.

Fire and flue surfaces are backed by water, and so arranged that heat can not impinge upon more than one-half of their area.

They have deep corrugated firepots with an enhanced fire surface.

The fire and ash-pit doors are large, simplifying the adding of fresh fuel and the removal of ashes.

Flue dampers are placed in the front and rear of the sections, to permit of each section receiving its own check and draft dampers, and thereby preventing loss.

The locking and damping gear are simple and effective, and cannot be forced out of position.

The water columns are in the centre of the sections and in direct line for free circulation.

All joints are made with push nipples, and, being one to one, they are absolutely water tight, no rubber packing being required.

DIMENSIONS, LIST PRICES, ETC.

Number	Diam. Base Inches	Height Firepot Inches	Diam. Dome Inches	Diam. Grate Inches	Number and Size Inlets	Number and Size Outlets	Height of Inlets Less Raw without Headers Inches	Height Outlets Less Raw without Headers Inches	Size Smoke Pipe Inches	Size of Coal	Net Rating Sq. Ft. of Radiation Allowance	List Price Less Base	List Price With Base	Crates Number
N-151-W	31	21	31	18	1 3	1 1	13	19½	6	Stove	175	$ 88 00	$ 93 00	6
N-152-W	31	21	31	18	1 3	1 1	17	23½	6	Stove	225	104 00	111 00	7
N-173-W	35½	24	35½	17	1 3	1 1	15½	20½	7	Stove	275	120 00	127 00	7
N-191-W	37	24½	37	20	1 3½	1 1½	15½	20½	8	Stove	300	136 00	144 00	7
N-211-W	40	25	40	22	1 3	1 1	15½	20½	9	Stove	350	152 00	160 00	7½
N-221-W	40	25	40	22	1 3	1 1	19½	24½	9	Stove	400	168 00	176 00	8
N-251-W	44	28	44	24	1 4	1 1	19½	24½	10	Stove	475	184 00	192 00	8
N-180-W	17½	18	17½	8	1 1	1 1	8½	11½	4	Egg	1000	220 00	230 00	6
N-201-W	17½	18	17½	8	1 1	1 1	8½	11½	4	Egg	1150	115 00	120 00	6½
N-232-W	40	30½	40	11	1 4	1 4	12½	16½	12	Egg	1500	193 00	200 00	7
N-313-W	40	30½	40	11	1 4	1 4	17½	21½	12	Egg	2000	241 00	251 00	7½
N-343-W	40	33	41½	14	1 5	1 5	17½	21½	12	Egg	2000	425 00	505 00	8

We furnish headers with all sizes of these boilers when desired, but do not recommend them for

TWIN CONNECTIONS

List Price Including Valves

No. 4, $10 00; No. 5 to No. 6, $15 00; No. 6½, $17 50; No. 7, $20 00; No. 8, $25 00.

Net Allowance for each Valve when not required

No. 4, $4 00; No. 5 to No. 6, $5 00; No. 6½, $6 25; No. 7, $8 00; No. 8, $9 00.

No allowance made for ordinary headers.

DOMESTIC WATER HEATERS

Small Size $2 00 Large Size $4 75

"ECONOMY" ROUND BOILER FOR STEAM.

Illustration with One Intermediate Section.

SPECIAL FEATURES

These boilers are similar in construction to the Economy Hot Water Boiler illustrated above, but have a special top or dome section.

DIMENSIONS, REVISED LIST PRICES, ETC.

Number of Heater	Diameter of Base	Height Firepot Inch Corrugated Dome	Water Line	Diameter of Grate	Number and Size of Inlets	Height of Inlets	Number and Size of Outlets	Height of Outlets	Size Smoke Collar	Height of Centre of Smoke Collar	Gen Rating, Sq Inch Radiation, Mains	List Pr
N-171-S	25½	14	40½	17	1 3	11½	1 2	9½	7	57½	800	$105 00
N-191-S	28	21½	40½	19	1 3½	11½	1 3	8½	7	57½	400	118 00
N-252-S	30½	28	40½	22	1 4	15½	1 3	55	9	55½	850	198 00
N-111-S	19½	28	40½	22	1 4	15½	1 3	59	9	59½	525	112 50
N-251-S	34	28	40½	25	1 4	16	1 3	1 0	10	61½	1200	317 00
N-282-S	37	28	47	28	1 4	16	1 4	56½	11	57	1600	400 00
N-281-S	37	28	51	28	1 4	16	1 4	56½	11	61	1800	435 00
N-113-S	40	30½	45	33	1 4	16	1 4	1 11½	13	58	1250	$301 00
N-115-S	40	30½	52	33	1 4	16	1 4	56½	12	62	1400	525 00
N-141-S	32	33	53	33	1 4	18	1 5	54	11	1 1½	1800	585 00

Above list covers boilers with or without headers.

Ratings.—The ratings given provide that all piping, in addition to the direct radiation to be used, shall be figured as radiating surface in estimating the size of boiler required.

CONTINUED ON NEXT PAGE

"PEASE IDEAL" SECTIONAL STEAM BOILERS.

ILLUSTRATION SHOWING FIRE FRONT

CAPACITIES, LIST PRICES, ETC.

Number Including Sections	Total Length Inches	Total Height Ins	Total Width Ins	Water Line Ins	Ashpit Inside Inches	Outlets Inches	Size Smoke Pipe	Grate Area Sq Ft	Average Fire Pot Sq Ft	*Note Ratings Sq Ft	List Price	Number Including Sections
S 15- 4	40½	51½	34½	18½	20½ x 22½	2 - 3	8	1 95	2 47	300	$ 215 00	S 15- 4
S 15- 5	47½	51½	34½	18½	20½ x 27½	2 - 3	8	2 60	3 30	390	230 00	S 15- 5
S 15- 6	54½	51½	34½	18½	20½ x 34	2 - 3	8	3 25	4 10	500	270 00	S 15- 6
S 19- 5	54½	55½	38	22½	20 x 29½	2 - 3	9	3 32	4 20	600	285 00	S 19- 5
S 19- 6	61½	55½	38	22½	20 x 36½	2 - 3	9	4 18	5 30	750	330 00	S 19- 6
S 19- 7	68½	55½	38	22½	20 x 43½	2 - 3	9	4 98	6 30	900	375 00	S 19- 7
S 22- 5	61½	59½	42	24½	24½ x 31½	2 - 4	10	4 98	6 24	850	375 00	S 22- 5
S 22- 6	68½	59½	42	24½	24½ x 38½	2 - 4	10	5 80	7 33	1 000	425 00	S 22- 6
S 22- 7	75½	59½	42	24½	24½ x 45½	2 - 4	10	6 62	8 42	1 150	475 00	S 22- 7
S 25- 5	68½	63½	47½	29	28 x 32½	3 - 4	11	5 44	6 87	1 100	450 00	S 25- 5
S 25- 6	75½	63½	47½	29	28 x 39½	3 - 4	11	6 30	8 00	1 250	500 00	S 25- 6
S 25- 7	82½	63½	47½	29	28 x 46½	3 - 4	11	7 16	9 12	1 400	550 00	S 25- 7
S 25- 8	89½	63½	47½	29	28 x 53½	3 - 4	11	8 02	10 24	1 550	600 00	S 25- 8
S 28- 5	75½	67½	51½	31½	30½ x 33½	3 - 4	12	6 24	7 93	1 450	525 00	S 28- 5
S 28- 6	82½	67½	51½	31½	30½ x 40½	3 - 4	12	7 16	9 10	1 650	575 00	S 28- 6
S 28- 7	89½	67½	51½	31½	30½ x 47½	3 - 4	12	8 02	10 24	1 850	625 00	S 28- 7
S 28- 8	96½	67½	51½	31½	30½ x 54½	3 - 4	12	8 88	11 40	2 000	675 00	S 28- 8
S 36- 5	89½	75½	59½	39½	38½ x 40½	3 - 5	15	8 10	10 30	2 000	675 00	S 36- 5
S 36- 6	96½	75½	59½	39½	38½ x 47½	3 - 5	15	9 12	11 70	2 250	750 00	S 36- 6
S 36- 7	103½	75½	59½	39½	38½ x 54½	3 - 5	15	10 14	13 00	2 500	825 00	S 36- 7
S 36- 8	110½	75½	59½	39½	38½ x 61½	3 - 5	15	11 16	14 30	2 750	900 00	S 36- 8
S 36- 9	117½	75½	59½	39½	38½ x 68½	3 - 5	15	12 18	15 60	3 000	975 00	S 36- 9
S 48- 6	92	87	61	41	40½ x 47½	3 - 6	21	11 16	14 30	3 000	975 00	S 48- 6
S 48- 7	103½	87	61	41	40½ x 54½	3 - 6	21	12 40	15 90	3 300	1 050 00	S 48- 7
S 48- 8	114	87	61	41	40½ x 61½	3 - 6	21	13 64	17 50	3 600	1 125 00	S 48- 8
S 48- 9	124½	87	61	41	40½ x 71½	3 - 6	21	14 88	19 10	3 900	1 200 00	S 48- 9
S 48- 10	135	87	61	41	40½ x 81½	3 - 6	21	16 12	20 70	4 200	1 275 00	S 48- 10

Above lists cover shipment of boilers with or without headers.
For each supply outlet on top of "Pease Ideal" Boilers there is a corresponding return inlet in either side.
Extra tappings provided if desired. Ratings above are for hard coal; soft coal requires next larger boiler.
Extra size to the main. Ratings above are for hard coal; soft coal requires size larger boiler.
For Wood Burning. On special order, wood grates can be supplied for the 19 inch, 22 inch, 25 inch and 28 inch boilers. The 19 inch boilers can be fitted with special fire door 10½ x 18 inch; 22 inch and 25 inch with 11½ x 18 inch fire door, and the 28 inch with 12½ x 20 inch fire door.

"PEASE IDEAL" SECTIONAL WATER BOILERS.

CAPACITIES, LIST PRICES, ETC.

Number Including Sections	Total Length Inches	Total Height Inches	Total Width Inches	Ashpit Inside Inches	Outlets Inches	Size Smoke Pipe	Grate Area Sq Ft	Average Fire Pot Sq Ft	*Note Ratings Sq Ft	List Price	Number Including Sections
W-15- 4	40½	42½	27½	20½ x 23½	2 - 3	8	1 95	2 47	300	$ 190 00	W 15- 4
W 15- 5	47½	42½	27½	20½ x 27½	2 - 3	8	2 60	3 30	390	230 00	W 15- 5
W 15- 6	54½	42½	27½	20½ x 34	2 - 3	8	3 25	4 10	500	270 00	W 15- 6
W 19- 5	54½	50	31½	20 x 29½	2 - 3	9	3 32	4 20	600	285 00	W 19- 5
W-19- 6	61½	50	31½	20 x 36½	2 - 3	9	4 18	5 30	750	330 00	W 19- 6
W-19- 7	68½	50	31½	20 x 43½	3 - 3	11	4 98	6 30	900	375 00	W 19- 7
W 22- 5	53½	52½	36	24½ x 31½	2 - 4	10	4 98	6 24	850	375 00	W 22- 5
W-22- 6	60½	52½	36	24½ x 38½	2 - 4	10	5 80	7 33	1 000	425 00	W 22- 6
W 22- 7	67½	52½	36	24½ x 45½	3 - 4	10	6 62	8 42	1 150	475 00	W 22- 7
W-25- 5	59½	57½	40½	28 x 35½	2 - 4	11	5 44	6 87	1 100	450 00	W 25- 5
W 25- 6	66½	57½	40½	28 x 42½	2 - 4	11	6 30	8 00	1 250	500 00	W 25- 6
W 25- 7	73½	57½	40½	28 x 50⅞	3 - 4	11	7 16	9 12	1 400	550 00	W 25- 7
W-25- 8	80½	57½	40½	28 x 58½	3 - 4	11	8 02	10 24	1 550	600 00	W-25- 8
W-28- 5	60	60½	44	30½ x 35½	2 - 4	12	6 24	7 33	1 450	525 00	W 28- 5
W-28- 6	68	60½	44	30½ x 43½	2 - 4	12	7 80	9 10	1 650	575 00	W-28- 6
W 28- 7	76	60½	44	30½ x 51½	3 - 4	12	9 36	10 99	1 850	625 00	W 28- 7
W-28- 8	84	60½	44	30½ x 59½	3 - 4	12	10 92	12 81	2 000	675 00	W-28- 8
W 36- 5	69½	70	53½	38½ x 40½	2- 5	15	9 12	10 40	2 000	675 00	W 36- 5
W-36- 6	78½	70	53½	38½ x 49½	2 - 5	15	11 40	13 00	2 500	825 00	W 36- 6
W-36- 7	87½	70	53½	38½ x 58½	3 - 5	15	13 68	15 60	3 000	975 00	W 36- 7
W-36- 8	96½	70	53½	38½ x 67½	3 - 5	15	15 96	18 20	3 500	1 125 00	W 36- 8
W-36- 9	105½	70	53½	38½ x 76½	3 - 5	15	18 24	20 80	4 000	1 275 00	W 36- 9
W-48- 6	92	81½	68	50½ x 47½	2 - 6	21	18 00	18 75	3 600	1 150 00	W 48- 6
W-48- 7	103½	81½	68	50½ x 54½	2 - 6	21	21 60	22 50	4 400	1 350 00	W 48- 7
W-48- 8	114	81½	68	50½ x 61½	3 - 6	21	25 20	26 25	5 000	1 550 00	W 48- 8
W-48- 9	124½	81½	68	50½ x 71½	3 - 6	21	28 80	30 00	5 800	1 775 00	W-48- 9
W-48-10	135	81½	68	50½ x 81½	3 - 6	21	32 40	33 75	6 500	2 000 00	W-48-10

ILLUSTRATION SHOWING No. W 25 - WATER BOILER

Above lists cover shipment of boilers with or without headers.
For each supply outlet on top of "Pease Ideal" Boilers there is a corresponding return inlet in either side.
Extra tappings provided if desired. Ratings above are for hard coal; soft coal requires next larger boiler.
For Wood Burning. On special order, wood grates can be supplied for the 19 inch, 22 inch, 25 inch and 28 inch boilers. The 19 inch boilers can be fitted with special fire door 10½ x 18 inch; 22 inch and 25 inch with 11½ x 18 inch fire door, and the 28 inch with 12½ x 20 inch fire door.

SPECIAL FEATURES

In the "Pease Ideal" Sectional Boilers with square or oblong fireports and grates are embodied substantially all features common to the "Economy" Boilers with round grates and fireports.

These features are, of course, changed somewhat in form to suit their application to the work which each type or size of boiler has to perform.

As stated, these features include:—

Correctly proportioned waterways for free and rapid circulation.

Fire and flue surfaces all backed by water, and so arranged that the heat rays will impinge upon every inch of their area.

Air burning features fully developed.

Overhanging fire surfaces.

Liberal steam dome.

Deep fireleg.

Large fire door, and large ashpit door, with butterfly damper.

Convenient smoke pipe check dampers.

Flue doors so placed as to permit of easy cleaning of all flue surfaces.

Cast iron nipples, making a perfectly tight and permanent joint, without any kind of packing.

Easy-operating grates, built upon the rocking and dumping principles, with lug to prevent accidental dumping.

Liberal size ashpit, with large opening to permit easy removal of ashes.

All steam boilers of this type are fitted with the Ideal Sylphon Automatic Damper Regulator without extra charge.

The sections are assembled on the unit plan. If, therefore, the structure in which boilers are placed should be rebuilt or extended, additional sections may be added.

THE GURNEY FOUNDRY CO., LIMITED

HEATING APPARATUS

TORONTO AND WEST TORONTO.

MONTREAL, HAMILTON, WINNIPEG, CALGARY, EDMONTON, LETHBRIDGE, VANCOUVER.

THE GURNEY-OXFORD ROUND HOT WATER BOILER.

This illustration is an actual photograph of an Oxford Boiler that has been cut open. Note the deep fire-pot, with insloping walls that corral the heat. The first section is double the usual thickness, and the smoke flues have sloping walls. The first section has more inches of fire surface per pound of water than in any boiler made.

Note the heavy iron nipples forming the ground joints between sections. Rubber gaskets have been eliminated on all steam sectional boilers of every make we advocate this same *all metal* joint on all boilers.

The grate bars revolve, and are gear driven each bar is removable through the base front, and the ash pit is free from levers, etc. there is more ash-pit head room.

Most Canadian Round Boilers are numbered from 1 to 10. Size for size the Oxford Boiler is decidedly larger in grate area. Your customer and client will get greater boiler power when the Oxford is used.

THE GURNEY-OXFORD ECONOMIZER.

A boiler must be installed with ample capacity for coldest weather. Yet for a large part of the heating season the boiler is "damped down." Milder weather has made a slow fire desirable.

Other boilers accomplish this by means of a shell top damper or by opening the fire-door. This method cools the sections that coal has been burned to heat up, with a sharp loss in economy, and the possibility of coal gas throughout the house is another undesirable feature.

Note the cast iron elbow or housing on the smoke opening of the Gurney-Oxford Boiler. The check air is taken in above all the water sections, and, as one flap acts as check damper and direct draft damper, the proportion of drafts is nicely maintained. It is easily possible with this device to hold fire for 24 hours, and one lever controls the fire, acting as a throttle valve on the entire system.

CONTINUED ON NEXT PAGE

OXFORD HOT WATER BOILERS

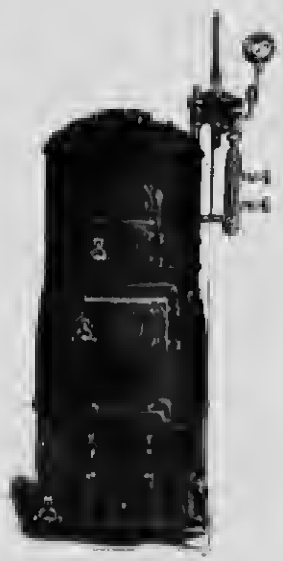
RATINGS PRICES ETC

No	Net Capacity Radiation Square Feet	Net Capacity Cubic Feet Cast Pipe	List Price Low Base	List Price High Base	Diam of Grate	Diam of Smoke Pipe	Size of Chimney Required	No of Flow and Return Outlets	Size Hood Used	Approximate Shipping Weight Oxford Hot Water Boilers	
										Low Base	High Base
0 1	170	340	$ 90 00	$ 95 00	17½	7	8 x 8	2 2	Stove	800	900
1 1	215	700	105 00	111 00	17½	7	8 x 8	2 2	Stove	950	1000
1	315	1000	110 00	117 00	20½	7	8 x 8	1 2	Stove	1150	1250
2 1	400	1400	100 00	170 00	22½	8	8 x 12	1 2	Stove	1420	1510
2 2	650	2000	200 00	215 00	24½	8	8 x 12	1 2	Stove	1650	1750
3 2	815	2400	200 00	200 00	27½	10	12 x 12	0 2	Stove	2000	2120
3 3	1000	3000	250 00	260 00	29½	10	12 x 12	0 2	Egg	2065	2200
3 4	1240	3750	315 00	330 00	32½	10	12 x 12	0 2	Egg	2750	2950
3 5	1500	4500	392 00	420 00	35½	11	12 x 12	0 2	Egg	3450	3750
3 6	2000	6000	475 00	505 00	38	11	12 x 12	0 2	Egg	3800	4100
3 7	2000	8000	525 00	555 00	38½	11	12 x 12	12 2	Egg	4100	4500
10 6	3000	12,000	800 00		42	12	12 x 16	12 2	Egg	5225	

All mains should be securely covered with good non-conducting material

Note diameter of above Flue pipes and compare with others

OXFORD STEAM BOILERS



FOR HARD OR SOFT COAL, OR COKE OR NATURAL GAS

DIMENSIONS CAPACITIES AND LIST PRICES

No	Outside Diameter of Boiler Inches	Height to Smoke Outlet Inches Low Base	Height to Smoke Outlet Inches High Base	Height of Water Line Inches Low Base	Height of Water Line Inches High Base	Diameter of Grate Inches	Grate Area Square Feet	Actual Capacity Direct Radiation Sq Ft	Capacity Cubic Feet Cast Pipe	Size Main Outlet Inches	Size Return Outlet Inches	Diameter of Smoke Outlet Inches	Size of Chimney Required	List Price including Trimmings Low Base	List Price including Trimmings High Base
00 E	22	54	56	11	11	17½	1½	200	600	2	1½	7	8 x 8	$116 01	$172 25
0 E	22	56½	59½	11½	17½	17½	1½	250	750	2	1½	7	8 x 8	185 00	192 25
2 E	24	58½	64½	11½	19½	20½	2½	350	1,050	2½	2	7	8 x 8	215 00	227 50
3 E	27	61	66	15½	21½	23½	2½	450	1,350	3	2	8	8 x 12	255 00	267 50
4 E	29	64	69	17	23	25½	3½	550	1,650	3	2	8	8 x 12	295 00	313 75
5 E	33	67	70	17½	25½	27½	4	700	2,100	3	2	10	12 x 12	337 50	362 50
6 E	37	69	72½	18	27½	29½	4½	800	2,700	3½	2½	10	12 x 12	400 00	431 25
7 E	38	70	70½	21	29½	32½	5½	1,000	3,075	4	2½	11½	12 x 12	425 00	468 75
8 E	44	73	82½	27	30½	35½	6½	1,275	3,825	4	2½	11½	12 x 12	500 00	535 00

Regular steam trimmings included are Steam Gauge, Safety Valve, Water Column, Glass Water Gauge, Gauge Cocks, Automatic Damper Regulator, also Cleaning Brush This applies excepting in British Columbia, where special fittings are required

Make due allowance for mains and risers when selecting size of boiler required All mains and boilers should be covered

When soft coal is used for fuel, select a size larger boiler

Direct-indirect radiation requires 50% more boiler capacity Indirect radiation requires 75% increased boiler capacity.

CONTINUED ON NEXT PAGE

GURNEY-OXFORD 900 SERIES WATER AND STEAM BOILERS.

The henderless, cast-iron boiler is now recognized as one of the best types for a great many buildings. The Gurney-Oxford 900 Series Boiler is designed to represent the utmost in efficiency, combined with great durability.

The fire-pot is very deep, and the grate is of the rocking and dumping type, well adapted to either hard or soft coal. The fire travels three times the length of the boiler, and the fire-box has the maximum number of square inches on which the fire shines. The sections are mounted together with heavy push nipples. This series is built in four grate widths and 22 sizes altogether, giving the widest possible range of choice, permitting the installation of a boiler exactly suited to the load it has to carry.

SPECIFICATIONS.

STEAM BOILERS

DESCRIPTION, CAPACITIES AND PRICES

No.	List Price	Capacity Feet	Equivalent in Inch Pipe	Height of Flue Inches	Depth Water Line Inches	Width Inches	Length Inches	Grate Inches	Flues Inches	Returns Inches	Approximate Shipping Weight Lbs.	Smoke Opening Inches	Size of Flue Required Inches
9018	$ 215 00	400	900	50	30	20	31	17x21	4	4	1 000	8	8x8
9118	255 00	475	1,050	50	30	20	37	17x30	4	4	1,125	8	8x8
9158	312 50	600	1,400	50	30	20	43	17x30	4	4	2,000	8	8x8
9168	450 00	750	2,250	50	30	20	55	17x45	4	4	2,375	8	8x8
9178	600 00	900	2,700	50	30	20	67	17x57	4	4	2,500	8	8x8
9218	255 00	425	1,275	56	18	12	25	21x16	4	4	1 100	8	8x8
9258	312 50	575	1,725	56	18	12	31	21x22	4	4	1,600	8	8x8
9268	450 00	825	2,475	56	18	12	43	21x32	4	4	2,000	8	8x8
9278	600 00	1,075	3,225	56	18	12	55	21x43	4	4	2,500	10	8x8
9288	637 50	1,050	3,150	56	18	12	503	21x103	4	4	3,100	10	12x12
9298	862 50	1,425	4,275	56	18	12	67	21x67	4	4	3,900	10	12x12
9348	375 00	1,200	3,600	61	30	11	12	30x28	4	4	3,200	12	12x12
9358	550 00	1,500	4,500	61	30	11	31	30x37	4	4	3,700	12	12x12
9368	625 00	1,800	5,400	61	30	11	00	30x16	4	4	4,100	12	12x16
9378	700 00	2,100	6,300	61	30	11	55	30x51	4	4	5,000	12	12x16
9388	775 00	2,400	7,200	61	30	11	44	30x63	4	4	5,900	12	12x16
9398	850 00	2,700	8,100	61	30	11	85	30x72	4	4	6,800	12	16x16
9458	800 00	2,500	7,500	72	40	30	31	42x37	4	4	5,000	13	16x16
9468	962 50	3,125	9,375	72	40	30	43	42x51	4	4	6,500	13	16x16
9478	1,112 50	3,750	11,250	72	40	30	55	42x63	4	4	7,100	13	16x16
9488	1,275 00	4,375	13,125	72	40	30	67	42x75	4	4	8,300	13	16x20
9498	1,125 00	5,000	15,000	72	40	30	80	42x84	4	4	9,300	13	16x20

HOT WATER BOILERS

DESCRIPTION, CAPACITIES AND PRICES

No.	List Price	Capacity Feet	Equivalent in Inch Pipe	Height of Flue Inches	Width Inches	Length Inches	Grate Inches	Flues Inches	Returns Inches	Approximate Shipping Weight Lbs.	Smoke Opening Inches	Size of Flue Required Inches
9118W	$ 190 00	500	1,500	50	30	20	17x21	4	4	1 100	8	8x8
9158W	240 00	750	2,250	50	30	20	17x30	4	4	1,725	8	8x8
9168W	387 50	1,000	3,000	50	30	20	17x30	4	4	2,050	8	8x8
9178W	525 00	1,250	3,750	50	30	20	17x45	4	4	2,375	8	8x8
9188W	675 00	1,500	4,500	50	30	20	17x57	4	4	2,700	8	12x12
9218W	240 00	700	2,100	56	18	12	25	21x16	4	4	1,100	8	8x8
9258W	287 50	900	2,700	56	18	12	31	21x22	4	4	1,600	8	8x8
9268W	425 00	1,150	3,450	56	18	12	43	21x32	4	4	2,000	8	8x8
9278W	575 00	1,400	4,200	56	18	12	55	21x43	4	4	2,500	10	8x8
9288W	612 50	1,350	4,050	56	18	12	503	21x103	4	4	3,100	10	12x12
9298W	837 50	1,850	5,550	56	18	12	67	21x67	4	4	3,900	10	12x12
9348W	350 00	1,550	4,650	61	30	11	12	30x28	4	4	3,200	12	12x12
9358W	525 00	2,000	6,000	61	30	11	31	30x37	4	4	3,700	12	12x12
9368W	600 00	2,475	7,425	61	30	11	43	30x16	4	4	4,100	12	12x16
9378W	675 00	3,000	10,500	61	30	11	55	30x51	4	4	5,000	12	12x16
9388W	750 00	3,525	11,175	61	30	11	67	30x63	4	4	5,900	12	12x16
9398W	812 50	4,050	13,350	61	30	11	85	30x72	4	4	6,800	12	16x16
9458W	762 50	3,000	12,000	72	40	30	31	42x37	4	4	5,000	13	16x16
9468W	925 00	3,900	15,300	72	40	30	43	42x51	4	4	6,500	13	16x16
9478W	1,074 00	4,800	18,300	72	40	30	55	42x63	4	4	7,100	13	16x16
9488W	1,212 50	5,700	21,900	72	40	30	67	42x75	4	4	8,300	13	16x20
9498W	1,062 50	6,600	25,200	72	40	30	80	42x84	4	4	9,300	13	16x20

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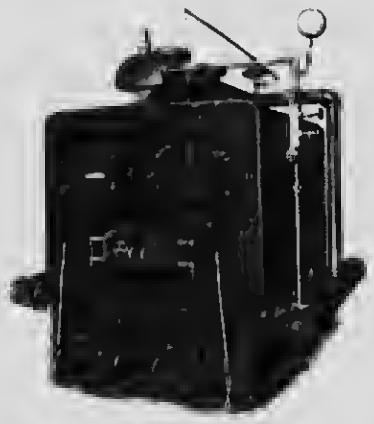


GURNEY BRIGHT IDEA BOILER

FOR STEAM OR HOT WATER.

These Boilers have capacity of 1,000 to 7,250 feet of radiation for Steam; 1,650 to 12,000 feet of radiation for Hot Water.

The large number of these boilers in successful operation over a long period of years is our best argument in their favour. The Bright Idea exactly meets the requirements of the trade for a header boiler with large steam space. This boiler comes in sixteen different sizes and three different grate widths. It is built for any kind of fuel and for steam or hot water work. Every care is taken to insure uniform castings, and we have attained almost absolute freedom from expansion cracks. Any section may be removed without displacing the whole boiler. The grates are accessible for repairs and easily operated. The flue surfaces are extremely large, and the long fire travel insures the best use of the products of combustion. All boilers are supplied with full complement of firing tools and steam boilers with best grade of low pressure steam trimmings.

STEAM BOILERS.

DESCRIPTION, CAPACITIES AND PRICES

No	Last Price, Hard and Soft Coal	Capacity, Feet	Capacity, Lin. Feet 4-inch Pipe	Height of Water Line, Inches	Height, including Headers, Inches	Length, Inches	Width, including Heads, Inches	Size Grate, Inches	Flue Outlet, Inches	Return Outlet, Inches	Diameter Smoke Pipe, Inches	Approx. Shipping Weight
1,020	$ 475 00	1,000	3,000	55	69½	41	56	28×26	2-4	2-3	12	3,500
1,021	475 00	1,200	4,000	55	69½	47	56	28×32	2-4	2-3	12	4,000
1,022	525 00	1,400	4,200	55	69½	53	56	28×38	2-4	2-3	12	4,400
1,023	575 00	1,600	4,800	55	69½	59	56	28×44	2-4	2-3	12	4,900
1,024	625 00	1,800	5,400	55	69½	65	56	28×50	3-4	3-3	12	5,400
1,025	675 00	2,000	6,000	55	69½	71	56	28×56	3-4	3-3	12	5,900
1,130	762 50	2,350	7,050	56	74	62	76	40×44	1-6 and 1-4	2-4	14	7,200
1,131	850 00	2,700	8,100	56	74	67	76	40×50	1-6 and 1-4	2-4	14	7,800
1,132	937 50	3,050	9,150	56	74	71	76	40×56	1-6 and 1-4	2-4	14	8,400
1,133	1,025 00	3,400	10,200	56	74	78	76	40×62	1-6 and 1-4	2-4	14	9,000
1,250	1,112 50	3,750	11,250	56	79	80	88	48×51	2-6	2-4	20	11,500
1,251	1,237 50	4,250	12,750	56	79	86	88	48×58	2-6	2-4	20	13,000
1,252	1,425 00	5,000	15,000	56	79	94	88	48×65	2-6	2-4	20	14,400
1,253	1,612 50	5,750	17,250	56	79	106	88	48×72	3-6	3-4	20	15,700
1,254	1,800 00	6,300	19,500	56	79	121	88	48×79	3-6	3-4	20	17,800
1,255	1,987 50	7,250	21,750	56	79	128	88	48×86	3-6	3-4	20	20,000

Regular Steam Trimmings included in price

All ratings are gross. Allow for radiation of piping when selecting size of Boiler

Direct-indirect radiation requires 50 per cent. increased boiler power

Indirect radiation requires 75 per cent. increased boiler power

HOT WATER BOILERS.

DESCRIPTION, CAPACITIES AND PRICES

No	Last Price, Hard and Soft Coal	Capacity, Feet	Capacity, Lin. Feet 4-inch Pipe	Height, including Header, Inches	Length, Inches	Width, including Headers, Inches	Size Grate, Inches	Max. Outlet, Inches, Flow and Return	Diameter Smoke Pipe, Inches	Approx. Shipping Weight
1,020	$ 400 00	1,650	4,950	69½	41	56	28×26	2-4	12	3,500
1,021	450 00	2,000	6,000	69½	47	56	28×32	2-4	12	4,000
1,022	500 00	2,325	6,975	69½	53	56	28×38	2-4	12	4,400
1,023	550 00	2,650	7,950	69½	59	56	28×44	3-4	14	4,900
1,024	600 00	2,975	8,925	69½	65	56	28×50	3-4	12	5,400
1,025	650 00	3,300	9,900	69½	71	56	28×56	3-4	12	5,900
1,130	737 50	3,875	11,625	74	62	76	40×44	1-6 and 1-4	14	7,200
1,131	812 50	4,450	13,350	74	67	76	40×50	1-6 and 1-4	14	7,800
1,132	900 00	5,025	15,075	74	74	76	40×56	1-6 and 1-4	14	8,400
1,133	987 50	5,600	16,800	74	79	76	40×62	1-6 and 1-4	14	9,000
1,250	1,075 00	6,200	18,600	79	80	88	48×51	2-6	20	11,500
1,251	1,175 00	7,000	21,000	79	86	88	48×58	2-6	20	13,000
1,252	1,362 50	8,250	24,750	79	94	88	48×65	2-6	20	14,400
1,253	1,550 00	9,575	28,725	79	106	88	48×72	3-6	20	15,700
1,254	1,737 50	10,750	32,250	79	121	88	48×79	3-6	20	17,800
1,255	1,925 00	12,000	36,000	79	128	88	48×86	3-6	20	20,000

All ratings are gross. Allow for radiation of piping when selecting size of boiler

CONTINUED ON NEXT PAGE

THE GURNEY-OXFORD SMOKE CONSUMING BOILER

SCOPE.

The continued advance in the cost of anthracite coal in Canada is a well-known fact. Much effort has been devoted to produce an economic method of burning soft coal of the poorer grades. To accomplish this, it is necessary to burn the smoke, with its excess of carbon gases. This has been satisfactorily accomplished by various means in power plants, where ideal conditions and high-pressure steam were available.

It has remained for us to first accomplish this in a Canadian-made, low-pressure, steam or hot-water heating boiler successfully.

FUNDAMENTAL PRINCIPL

The primary fire is on the upper grate, which is hollow and contains water. The fresh air is taken in above this fire, and the flames plunge down through openings in this grate. Burning coals, also, drop through these holes, forming a shallow, incandescent bed of fuel on the lower grate. The heavy black smoke, full of unburnt carbon, bursts into flame as it passes over this secondary fire, and the products of combustion then enter the combustion chamber in the rear of the boiler, where the cooled gases finally reach the smoke flue.

RESULT.

With soft coal, slack or screenings, a result is obtained which compares favorably with other boilers burning high-grade anthracite—the fuel bill is, consequently, cut in half. The smoke from this boiler is as colorless as when anthracite coal has been used. *The smoke has been burned.*

DETAIL OF CONSTRUCTION.

The Boiler is built of sections which will readily enter through a 24-in. door. These sections are independently connected to flow and return headers. The tubes above each fire and in the combustion section insure greatest fire surface possible, embodying the principle of the water-tube boiler.

The upper grate, which contains water, is extremely heavy, and, as this water is between two fires, it certainly means the most active surface ever devised. The Steam Boiler is equipped with automatic damper regulator.

GUARANTEE.

We are prepared to stand behind these products as representing the last word in soft-coal heating boilers.

CONTINUED ON NEXT PAGE

GOTHIC STEAM BOILER

CAPACITY DIRECT RADIATION 300 FEET

MADE IN ONE SIZE

No	Height Inches	Diam. Base, Inches	Diam. Water, Inches	Diam. Smoke Outlet Inches	Number and Size Outlets, Inches	List Price, including Trimmings	Shipping Weight
10	47	25	16	7	1 1/4 Flow 1 1/4 Return	$165.00	700 lbs

THE GOTHIC HEATER

A very efficient heater, will be found especially suitable where large quantities of water are required for barber shops, restaurants, small greenhouses, baths, etc. It is very strongly constructed. Has a deep firepot, which ensures slow combustion and economy of fuel. There are no water joints. The heater has a crown sheet, the products of combustion do not enter directly into the flue.

No	Height Inches	Diameter of Firepot, Inches	Capacity Direct Radiation, Feet	Tank Capacity Gallons	Diameter of Smoke Outlet Inches	Size of Top Required Inches	Sizes of Flow and Return Outlet, Inches	Cast Price	Approximate Shipping Weight
12	35	16	175	225	6	9 x 9	1 1/4 Flow 1 1/4 Return	$ 55.00	450
11	37	14	250	325	7	9 x 9	1 1/2 Flow 1 1/2 Return	75.00	550
10	39	16	350	450	7	9 x 9	1 1/2 Flow 1 1/2 Return	100.00	675

GURNEY OXFORD DEFIANCE HEATER

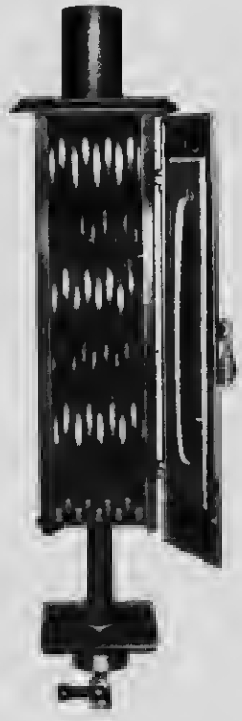
A splendid tank heater, with convenient pot hole in top. Will give excellent satisfaction for very small hot water jobs. A splendid stable heater.

DATA

FOR COAL

No	Tank Capacity	Capacity in Hot Water Pipe	Approx. Shipping Weight	List Price
110	150 gals	400 feet	350 lbs.	$45.00
112	200 gals	1000 feet	400 lbs	52.50

THE GURNEY-OXFORD NIXEX GAS WATER HEATER



Owing to its construction, this heater will give a good quantity of hot water in a remarkably short space of time. Every user should be aware of the following valuable features about this heater:

The Heater contains 30 feet of pure copper tubing, securely expanded in a cast metal header. The water is split into small units and heats very quickly. This is a great advantage over the single coil, where the water must travel through the entire heater before being fired.

The peculiar arrangement of these coils ensures the best possible combustion of the gas consumed, and provides the largest possible combustion space above the burners.

The burner is of the most modern design, capable of perfect results. The air mixer is unique in construction, ensuring the right proportion of air for combustion at all times.

The outside casing is of heavy cast iron, neat and well finished, and provided with full-sized door opening for cleaning coils and lighting burner. This is an immense advantage, as the heater may be kept at the highest point of efficiency at all times.

A cast iron drip pan is provided to catch any condensation.

No	Over-all Dimensions	Approx. Shipping Weight, 19 lbs	List Price
1	17" wide, 9" deep x 27" high		$10.00

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RADIATOR CONNECTIONS.

The vital point in all radiators is the joint. Two methods of joining together the sections or loops which make up a radiator are well known throughout the country the Screw Nipple and the Push Nipple or Ground Joint. The screw nipple simply draws together two planed faces on a paper gasket by means of a right and left thread the life of that gasket is the life of the joint.

When the ground joint or push nipple method is employed, the sections are connected by a ground hollow casting or nipple, which has been so machined that it fits into each loop like a ground-glass stopper in a bottle imagine a double glass stopper that fitted into two bottles with a hole through it, and you have the principle used.

We sell both types, and so can meet any specification, but we recommend and guarantee the push nipple for two reasons: (1) It is an iron to iron joint, without packing of any kind; (2) if it ever is necessary to rebuild a radiator for the purpose of either increasing or diminishing the amount of surface, it is a simple matter with the push nipple type see illustration but practically impossible where the other joint is used.

CONTINUED ON NEXT PAGE

GURNEY-OXFORD DUET RADIATOR

Each Section is 7¼ inches wide

Distance from floor to centre of tapping, one pipe, steam	3½ inches
Distance from floor to centre of tapping in centre opening, hot water	4 inches
Distance from floor to centre of tapping in twin opening	4 inches
Distance from wall to centre of tapping in centre opening	4 inches
Distance from wall to centre of tapping in twin opening	2½ inches
Distance from centre to centre of twin opening	3½ inches
Distance from floor to centre of top opening	
45-inch Radiator	42½ inches
38-inch Radiator	35 inches
32-inch Radiator	29½ inches
26-inch Radiator	23½ inches
23-inch Radiator	20½ inches
20-inch Radiator	17½ inches

TABLE OF GURNEY-OXFORD DUET RADIATOR CAPACITIES

PLAIN OR ORNAMENTAL								STEAM OR HOT WATER			
		List 48 Cents 45 Inches High		List 48 Cents 38 Inches High		List 52 Cents 32 Inches High		List 56 Cents 26 Inches High		List 58 Cents 23 Inches High		List 62 Cents 20 Inches High	
Size of Radiator No. of Loops Long	Extreme Length of Radiator, Inches	Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe	Feet of Heating Surface	Equivalent 1-Inch Pipe
2 × 2	5	10	30	8	24	6⅔	20	5⅓	16	4⅔	14	4	12
2 × 3	7½	15	45	12	36	10	30	8	24	7	21	6	18
2 × 4	10	20	60	16	48	13⅓	40	10⅔	32	9⅓	28	8	24
2 × 5	12½	25	75	20	60	16⅔	50	13⅓	40	11⅔	35	10	30
2 × 6	15	30	90	24	72	20	60	16	48	14	42	12	36
2 × 7	17½	35	105	28	84	23⅓	70	18⅔	56	16⅓	49	14	42
2 × 8	20	40	120	32	96	26⅔	80	21⅓	64	18⅔	56	16	48
2 × 9	22½	45	135	36	108	30	90	24	72	21	63	18	54
2 × 10	25	50	150	40	120	33⅓	100	26⅔	80	23⅓	70	20	60
2 × 11	27½	55	165	44	132	36⅔	110	29⅓	88	25⅔	77	22	66
2 × 12	30	60	180	48	144	40	120	32	96	28	84	24	72
2 × 13	32½	65	195	52	156	43⅓	130	34⅔	104	30⅓	91	26	78
2 × 14	35	70	210	56	168	46⅔	140	37⅓	112	32⅔	98	28	84
2 × 15	37½	75	225	60	180	50	150	40	120	35	105	30	90
2 × 16	40	80	240	64	192	53⅓	160	42⅔	128	37⅓	112	32	96
2 × 17	42½	85	255	68	204	56⅔	170	45⅓	136	39⅔	119	34	102
2 × 18	45	90	270	72	216	60	180	48	144	42	126	36	108
2 × 19	47½	95	285	76	228	63⅓	190	50⅔	152	44⅓	133	38	111
2 × 20	50	100	300	80	240	66⅔	200	53⅓	160	46⅔	140	40	120

Width of Radiator, 7¼ in.

GURNEY-OXFORD TREMONT RADIATORS

FOR HOT WATER OR STEAM. PLAIN OR ORNAMENTAL.
DIMENSIONS AND CAPACITIES

		List 44 Cents		List 52 Cents		List 56 Cents		List 62 Cents	
Size of Radiator No. of Loops Long	Extreme Length of Radiator, Inches	30 Inches High Square Feet of Heating Surface	Equivalent of 1-inch Pipe	35 Inches High Square Feet of Heating Surface	Equivalent of 1-inch Pipe	27 Inches High Square Feet of Heating Surface	Equivalent of 1-inch Pipe	23 Inches High Square Feet of Heating Surface	Equivalent of 1-inch Pipe
3 × 2	5	12	36	10½	31½	8½	25½	6½	19½
3 × 3	7½	18	54	15¾	47¼	12¾	38¼	9¾	29¼
3 × 4	10	24	72	21	63	17	51	13	39
3 × 5	12½	30	90	26¼	78¾	21¼	63¾	16¼	48¾
3 × 6	15	36	108	31½	94½	25½	76½	19½	58½
3 × 7	17½	42	126	36¾	110¼	29¾	89¼	22¾	68¼
3 × 8	20	48	144	42	126	34	102	26	78
3 × 9	22½	54	162	47¼	141¾	38¼	114¾	29¼	87¾
3 × 10	25	60	180	52½	157½	42½	127½	32½	97½
3 × 11	27½	66	198	57¾	173¼	46¾	140¼	35¾	107¼
3 × 12	30	72	216	63	189	51	153	39	117
3 × 13	32½	78	234	68¼	204¾	55¼	165¾	42¼	126¾
3 × 14	35	84	252	73½	220½	59½	178½	45½	136½
3 × 15	37½	90	270	78¾	236¼	63¾	191¼	48¾	146¼
3 × 16	40	96	288	84	252	68	204	52	156
3 × 17	42½	102	306	89¼	267¾	72¼	216½	55¼	165¾
3 × 18	45	108	324	94½	283½	76½	229½	58½	175½
3 × 19	47½	114	342	99¾	299¼	80¾	242¼	61¾	185¼
3 × 20	50	120	360	105	315	85	255	65	195

GURNEY-OXFORD TREMONT RADIATOR

Each Section is 9½ inches wide.

Distance from floor to centre of tapping in centre opening	4 inches
Distance from wall to centre of tapping in centre opening	5 inches
Distance from wall to centre of tapping in twin opening	2¾ inches
Distance from floor to centre of tapping in centre opening	4 inches
Distance from centre to centre in twin openings	1¼ inches
Distance from floor to centre of top opening—	
39-inch Radiator	37¼ inches
33-inch Radiator	31¼ inches
27-inch Radiator	25¼ inches
21-inch Radiator	19¼ inches

CONTINUED ON NEXT PAGE

TABLE OF GURNEY OXFORD QUARTET RADIATOR CAPACITIES

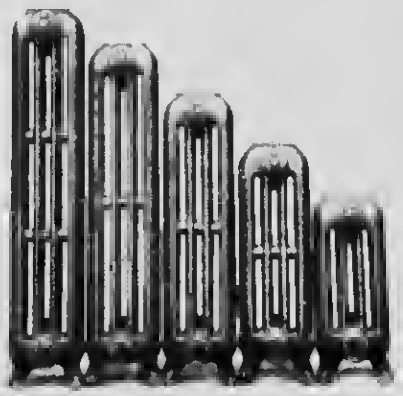
PLAIN OR ORNAMENTAL — STEAM OR HOT WATER

Sections	Extreme Length of Radiator in Inches	List 48 Cents 43½ Inches High — Feet of Heating Surface	List 48 Cents 43½ Inches High — Equivalent 1-Inch Pipe	List 48 Cents 38½ Inches High — Feet of Heating Surface	List 48 Cents 38½ Inches High — Equivalent 1-Inch Pipe	List 52 Cents 33½ Inches High — Feet of Heating Surface	List 52 Cents 33½ Inches High — Equivalent 1-Inch Pipe	List 56 Cents 29½ Inches High — Feet of Heating Surface	List 56 Cents 29½ Inches High — Equivalent 1-Inch Pipe	List 62 Cents 25½ Inches High — Feet of Heating Surface	List 62 Cents 25½ Inches High — Equivalent 1-Inch Pipe
4×2	8½	19⅓	58	16	48	13⅓	40	10⅔	32	8	24
4×3	12½	29	87	24	72	20	60	16	48	12	36
4×4	16½	38⅔	116	32	96	26⅔	80	21⅓	64	16	48
4×5	20¼	48⅓	145	40	120	33⅓	100	26⅔	80	20	60
4×6	24¾	58	174	48	144	40	120	32	96	24	72
4×7	28¾	67⅔	203	56	168	46⅔	140	37⅓	112	28	84
4×8	32¾	77⅓	232	64	192	53⅓	160	42⅔	128	32	96
4×9	37	87	261	72	216	60	180	48	144	36	108
4×10	41	96⅔	290	80	240	66⅔	200	53⅓	160	40	120
4×11	45	106⅓	319	88	264	73⅓	220	58⅔	176	44	132
4×12	49	116	348	96	288	80	240	64	192	48	144
4×13	53	125⅔	377	104	312	86⅔	260	69⅓	208	52	156
4×14	57½	135⅓	406	112	336	93⅓	280	74⅔	224	56	168
4×15	61½	145	435	120	360	100	300	80	240	60	180
4×16	65½	154⅔	464	128	384	106⅔	320	85⅓	256	64	192
4×17	69½	164⅓	493	136	408	113⅓	340	90⅔	272	68	204
4×18	73½	174	522	144	432	120	360	96	288	72	216
4×19	77¾	183⅔	551	152	456	126⅔	380	101⅓	304	76	228
4×20	82	193⅓	580	160	480	133⅓	400	106⅔	320	80	240

Width of Radiator, 8¼ inches.

GURNEY OXFORD QUARTET RADIATOR

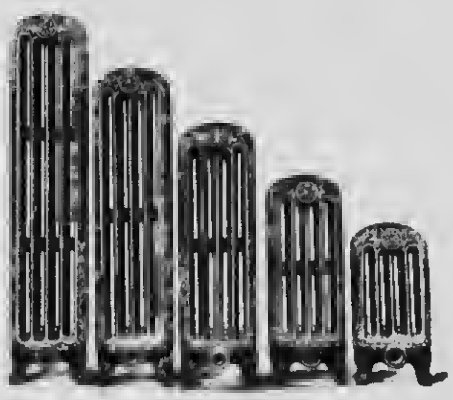
Each Section is 8¼ inches wide



Distance from floor to centre of tapping in centre opening	1 inches
Distance from wall to centre of tapping in centre opening	1¼ inches
Distance from wall to centre of tapping in twin opening	2½ inches
Distance from floor to centre of tapping in twin openings	1 inches
Distance from centre to centre in twin opening	3¼ inches
Distance from floor to centre of top opening	
42½-inch Radiator	40¼ inches
38½-inch Radiator	36¼ inches
32½-inch Radiator	30¼ inches
26½-inch Radiator	24¼ inches
20½-inch Radiator	18¼ inches

GURNEY-OXFORD QUINTET RADIATOR

Each Section is 9¾ inches wide



Distance from floor to centre of tapping in centre opening	3¼ inches
Distance from wall to centre of tapping in centre opening	5 inches
Distance from wall to centre of tapping in twin opening	2½ inches
Distance from floor to centre of tapping in twin opening	3¼ inches
Distance from centre to centre in twin openings	1¼ inches
Distance from floor to centre of top opening—	
17-inch Radiator	41¼ inches
40-inch Radiator	37¼ inches
33-inch Radiator	31 inches
26-inch Radiator	24 inches
20-inch Radiator	17¼ inches

TABLE OF GURNEY-OXFORD QUINTET RADIATOR CAPACITIES

ORNAMENTAL ONLY — STEAM OR HOT WATER.

Sections	Extreme Length of Radiator, Inches	List 48 Cents 43 Inches High — Feet of Heating Surface	List 48 Cents 43 Inches High — Equivalent 1-Inch Pipe	List 48 Cents 40 Inches High — Feet of Heating Surface	List 48 Cents 40 Inches High — Equivalent 1-Inch Pipe	List 52 Cents 34 Inches High — Feet of Heating Surface	List 52 Cents 34 Inches High — Equivalent 1-Inch Pipe	List 56 Cents 26 Inches High — Feet of Heating Surface	List 56 Cents 26 Inches High — Equivalent 1-Inch Pipe	List 62 Cents 20 Inches High — Feet of Heating Surface	List 62 Cents 20 Inches High — Equivalent 1-Inch Pipe
5×2	8¾	20	78	22	96	18	54	14	42	10	30
5×3	12¾	30	117	33	99	27	81	21	63	15	45
5×4	16¾	42	156	44	132	36	108	28	84	20	60
5×5	20¾	55	195	55	165	45	135	35	105	25	75
5×6	25	78	234	66	198	54	162	42	126	30	90
5×7	29	91	273	77	231	63	189	49	147	35	105
5×8	33	104	312	88	264	72	216	56	168	40	120
5×9	37	117	351	99	297	81	243	63	189	45	135
5×10	41¾	130	390	110	330	90	270	70	210	50	150
5×11	45¾	143	429	121	363	99	297	77	231	55	165
5×12	49¾	156	468	132	396	108	324	84	252	60	180
5×13	53¾	169	507	143	429	117	351	91	273	65	195
5×14	57¾	182	546	154	462	126	378	98	294	70	210
5×15	61¾	195	585	165	495	135	405	105	315	75	225
5×16	65¾	208	624	176	528	144	432	112	336	80	240
5×17	69¾	221	663	187	561	153	459	119	357	85	255
5×18	73¾	234	702	198	594	162	486	126	378	90	270
5×19	77¾	247	741	209	627	171	513	133	399	95	285
5×20	81¾	260	780	220	660	180	540	140	420	100	300

Width of Radiator, 9¾ inches.

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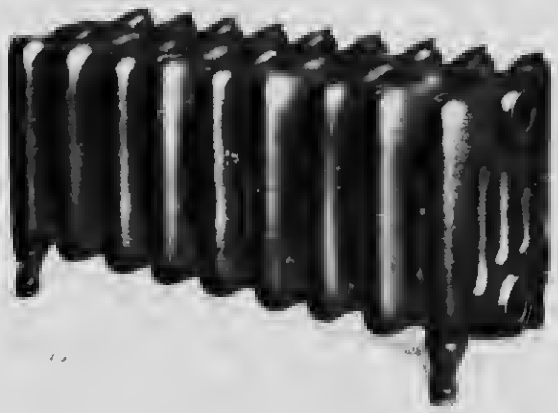
GURNEY-OXFORD WINDOW RADIATOR.

STEAM OR WATER.



Size of Radiator Number of Loops Tons.	Extreme Length of Radiator in Inches	List 74 cents 13" Inches High		List 98 cents 16" Inches High	
		Feet Heating Surface	Equivalent in Inch Pipe	Feet Heating Surface	Equivalent in Inch Pipe
3 x 3	6	4	24	10	30
3 x 4	8	6	30	15	75
3 x 5	10	8	36	20	105
3 x 6	12	10	42	25	135
3 x 7	14	12	48	30	165
3 x 8	16	14	54	35	195
3 x 9	18	16	60	40	220
3 x 10	20	18	66	45	245
3 x 11	22	20	72	50	270
3 x 12	24	22	78	55	295
3 x 13	26	24	84	60	320
3 x 14	28	26	90	65	345
3 x 15	30	28	96	70	370
3 x 16	32	30	102	75	395
3 x 17	34	32	108	80	420
3 x 18	36	34	114	85	445
3 x 19	38	36	120	90	470
3 x 20	40	38	126	95	495

Width of Radiator, 11½ inches. Distance from floor to centre of opening, 4 inches. Distance between opening from connections, 3½ inches.

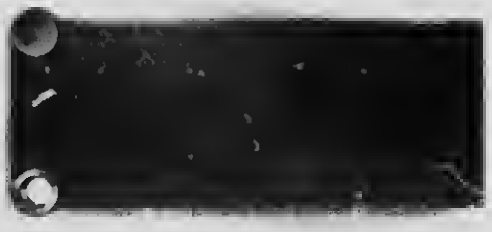
GURNEY-OXFORD HOSPITAL RADIATOR.

Made in Duet and Tremont styles all heights. Add 1 inch per section to the length of Radiator in figuring.

This Radiator represents most advanced practice in hospital equipment, being so designed that any lodgment of dust is readily cleaned away, and germs have little or no opportunity to multiply.

SCHOOL PIN INDIRECT RADIATORS.

STEAM SECTION.



Each section contains 20 square feet of heating surface.

Length, 36 inches; height, 13 ⅞ inches; width each section occupies in stack, 11¼ inches; height at connecting point, 15 inches.

Sections will be shipped separately unless specified in stacks. When ordered assembled, they will be shipped in stacks of not more than six sections each.

School Pin Indirect Sections are connected with 2-inch right and left hexagon nipples.

GURNEY-OXFORD VENTILATING RADIATOR ATTACHMENT

CONVERTING DIRECT RADIATORS TO VENTILATING TYPE.

This new adjustable box base is constructed so that it will take a supply of air either through the floor or the wall. The base dampers are fitted so that when the front damper is open, the base or back damper is closed, and vice versa. This insures a continuous circulation.

This base can be furnished with floor damper instead of back inlet. Where floor inlet dampers are required, same should be specially stated when ordering, otherwise back inlet dampers will be supplied.

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GURNEY OXFORD PRIMA RADIATOR

Each Section is 4½ inches wide

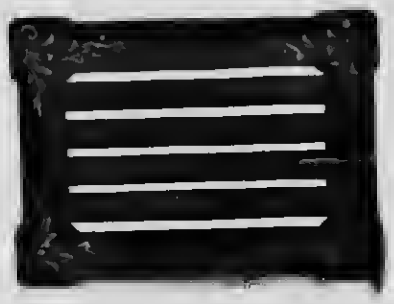
Distance from floor to centre of tapping in centre opening	4 inches
Distance from floor to centre of tapping in twin opening	4½ inches
Distance from wall to centre of tapping in centre opening	2½ inches
Distance from wall to centre of tapping in twin opening	1½ inches
Distance from centre to centre in twin openings	3½ inches
Distance from floor to centre of top opening —	
38-inch Radiator	37½ inches
34-inch Radiator	31½ inches
27-inch Radiator	25½ inches

GURNEY OXFORD PRIMA RADIATOR CAPACITIES

PLAIN OR ORNAMENTAL — STEAM OR WATER

Size of Radiator No. of Loops Long	Extreme Length of Radiator in Inches	List 48 Cents 38 Inches High: Feet of Heating Surface	List 48 Cents 38 Inches High: Equivalent Inch Pipe	List 52 Cents 31 Inches High: Feet of Heating Surface	List 52 Cents 31 Inches High: Equivalent Inch Pipe	List 56 Cents 25 Inches High: Feet of Heating Surface	List 56 Cents 25 Inches High: Equivalent Inch Pipe
2	11½	3	21	3	20	3	16
3	15½	4½	30	4½	30	4½	24
4	19½	6	42	6	40	6	32
5	23½	7½	54	7½	50	7½	40
6	27½	9	63	9	60	9	48
7	31½	10½	75	10½	70	10½	56
8	35½	12	87	12	80	12	64
9	39½	13½	96	13½	90	13½	72
10	43½	15	108	15	100	15	80
11	47½	16½	120	16½	110	16½	88
12	51½	18	132	18	120	18	96
13	55½	19½	144	19½	130	19½	104
14	59½	21	156	21	140	21	112
15	63½	22½	168	22½	150	22½	120
16	67½	24	180	24	160	24	128
17	71½	25½	192	25½	170	25½	136
18	75½	27	204	27	180	27	144
19	79½	28½	216	28½	190	28½	152
20	83½	30	228	30	200	30	160
21	87½	31½	240	31½	210	31½	168

Width of Radiator 4½ in



GURNEY-OXFORD NARRO WALL RADIATOR

TAPPINGS FROM CENTRE TO CENTRE.

5 ft. section	10½ inches
7 ft. section, horizontal	10½ inches
7 ft. section, vertical	16 inches
9 ft. section, horizontal	10½ inches
9 ft. section, vertical	21 inches

THE NINE FOOT LOOP.

HORIZONTALLY CONNECTED

3 inches wide — List Price, 48c per foot — Price does not include brackets

No. of Sections	Height, Inches	Length, Inches	Feet of Heating Surface	Equivalent in Inch Pipe
1	11	24½	3	27
2	14	18½	4½	54
3	14	24½	6	81
4	11	60½	9	108
5	14	120½	15	135
6	31	114½	9	162

THE NINE FOOT LOOP.

VERTICALLY CONNECTED

4 inches wide — List Price, 48c per foot — Price does not include brackets

No. of Sections	Height, Inches	Length, Inches	Feet of Heating Surface	Equivalent in Inch Pipe
1	24½	14	3	27
2	24½	18	4½	54
3	24½	24	6	81
4	24½	36	9	108
5	24½	60	15	135
6	24½	84	21	162
7	24½	108	27	189
8	24½	132	33	216

TAPPINGS FROM CENTRE TO CENTRE.

5 ft. section	10½ inches
7 ft. section, horizontal	10½ inches
7 ft. section, vertical	13 inches
9 ft. section, horizontal	10½ inches
9 ft. section, vertical	21 inches

For building wall radiators in stacks we make an extra charge, as follows

No. Sections Thick	1 and 2 Sections Long	3 and 4 Sections Long	5 and 6 Sections Long
2	$ 4 00	$ 4 50	$ 5 00
3	6 00	6 50	7 00
4	8 00	8 50	9 00
5	10 00	10 50	11 00
6	12 00	12 50	13 00

For each additional thickness, an extra charge of $2 00 to above list prices

In ordering, specify style required

THE FIVE FOOT LOOP.

DIMENSIONS, CAPACITIES ETC.

3 inches wide — List Price, 52c per foot — Price does not include brackets

No. of Sections	Height, Inches	Length, Inches	Feet of Heating Surface	Equivalent in Inch Pipe
1	11	14½	3	15
2	11	25½	10	30
3	11	36½	15	45
4	11	54	20	60
5	11	67½	25	75
6	11	81	30	90
7	11	94½	35	105
8	11	108	40	120
9	11	121½	45	135
10	11	135	50	150

THE SEVEN FOOT LOOP.

HORIZONTALLY CONNECTED

3 inches wide — List Price, 50c per foot — Price does not include brackets

No. of Sections	Height, Inches	Length, Inches	Feet of Heating Surface	Equivalent in Inch Pipe
1	11	19½	7	21
2	11	31½	11	42
3	11	43½	15	63
4	11	55½	21	84
5	11	67½	25	105
6	11	79½	32	126
7	11	91½	41	147

THE SEVEN FOOT LOOP.

VERTICALLY CONNECTED

3 inches wide — List Price, 50c per foot — Price does not include brackets

No. of Sections	Height, Inches	Length, Inches	Feet of Heating Surface	Equivalent in Inch Pipe
1	19½	11	7	21
2	19½	17½	11	42
3	19½	24½	21	63
4	19½	36½	25½	84
5	19½	42½	45½	105
6	19½	54½	42	126
7	19½	60½	49	147

TAYLOR-FORBES COMPANY, LIMITED

GENERAL OFFICE AND WORKS:

GUELPH, ONTARIO.

SOVEREIGN RADIATORS

WITH SCREWED NIPPLE CONNECTIONS
SUITABLE FOR ANY KNOWN SYSTEM OF HEATING
THE ONLY RANGE OF RADIATORS MADE OF UNIFORM DESIGN

BRANCHES:

TORONTO, MONTREAL,
VANCOUVER,
HAMILTON.

AGENTS:

VULCAN IRONWORKS, WINNIPEG.
P. D. McLAREN, LTD., CALGARY.
MECHANICS SUPPLY CO., QUEBEC.
W. H. CAMPBELL, ST. JOHN.

MONARCH TWO LOOP

LIST OF SIZES AND CAPACITIES
TWO LOOPS 38" INCHES WIDE

Number of Sections	Square Feet of Heating Surface					
	Length in Inches Over All	15" in. High 4 Ft. per Section	18" in. High 5 Ft. per Section	22" in. High 6 Ft. per Section	26" in. High 7 Ft. per Section	30" in. High 8 Ft. per Section
1	5	1	1	1	1	1
2	7	2	2	2	2	2
3	10	3	3	3	3	3
4	12	4	4	4	4	4
5	15	5	5	5	5	5
6	17	6	6	6	6	6
7	20	7	7	7	7	7
8	22	8	8	8	8	8
9	25	9	9	9	9	9
10	27	10	10	10	10	10
11	30	11	11	11	11	11
12	32	12	12	12	12	12
13	35	13	13	13	13	13
14	37	14	14	14	14	14
15	40	15	15	15	15	15
16	42	16	16	16	16	16
17	45	17	17	17	17	17
18	47	18	18	18	18	18
19	50	19	19	19	19	19
20	52	20	20	20	20	20
21	55	21	21	21	21	21
22	57	22	22	22	22	22
23	60	23	23	23	23	23
24	62	24	24	24	24	24
25	65	25	25	25	25	25
26	67	26	26	26	26	26
27	70	27	27	27	27	27
28	72	28	28	28	28	28
29	75	29	29	29	29	29
30	77	30	30	30	30	30
31	80	31	31	31	31	31
32	82	32	32	32	32	32
33	85	33	33	33	33	33
34	87	34	34	34	34	34
35	90	35	35	35	35	35
36	92	36	36	36	36	36

MONARCH ORNAMENTAL OR PLAIN. FOR WATER OR STEAM.

COLONIAL PATTERN TWO LOOP

LIST OF SIZES "COLONIAL" FOR STEAM AND HOT WATER
EACH LOOP IS 3 INCHES WIDE AND 2 INCHES THICK ACROSS HUBS.

Number of Sections	Square Feet of Heating Surface							
	Length in Inches Over All	15" in. High 3 Ft. per Section	18" in. High 4 Ft. per Section	22½" in. High 5 Ft. per Section	26" in. High 6 Ft. per Section	30" in. High 7 Ft. per Section	34" in. High 8 Ft. per Section	38" in. High 9 Ft. per Section
1	5	3	4	5	6	7	8	9
2	7½	6	8	10	12	14	16	18
3	10	9	12	15	18	21	24	27
4	12½	12	16	20	24	28	32	36
5	15	15	20	25	30	35	40	45
6	17½	18	24	30	36	42	48	54
7	20	21	28	35	42	49	56	63
8	22½	24	32	40	48	56	64	72
9	25	27	36	45	54	63	72	81
10	27½	30	40	50	60	70	80	90
11	30	33	44	55	66	77	88	99
12	32½	36	48	60	72	84	96	108
13	35	39	52	65	78	91	104	117
14	37½	42	56	70	84	98	112	126
15	40	45	60	75	90	105	120	135
16	42½	48	64	80	96	112	128	144
17	45	51	68	85	102	119	136	153
18	47½	54	72	90	108	126	144	162
19	50	57	76	95	114	133	152	171
20	52½	60	80	100	120	140	160	180
21	55	63	84	105	126	147	168	189
22	57½	66	88	110	132	154	176	198
23	60	69	92	115	138	161	184	207
24	62½	72	96	120	144	168	192	216
25	65	75	100	125	150	175	200	225
26	67½	78	104	130	156	182	208	234
27	70	81	108	135	162	189	216	243
28	72½	84	112	140	168	196	224	252
29	75	87	116	145	174	203	232	261
30	77½	90	120	150	180	210	240	270
31	80	93	124	155	186	217	248	279
32	82½	96	128	160	192	224	256	288
33	85	99	132	165	198	231	264	297
34	87½	102	136	170	204	238	272	306
35	90	105	140	175	210	245	280	315
36	92½	108	144	180	216	252	288	324

COLONIAL PLAIN. WATER OR STEAM.

COLONIAL—ORNAMENTAL. WATER OR STEAM

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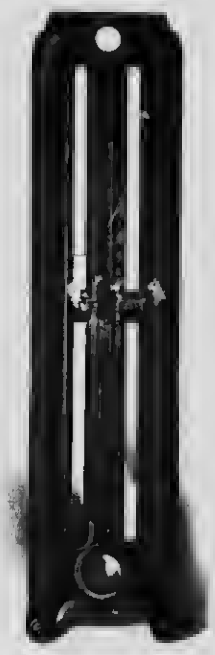
SOVEREIGN RADIATORS

Empire Pattern Three Loop.

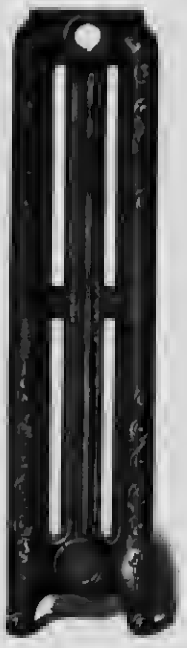


Empire Plain
Water or Steam

LIST OF SIZES AND CAPACITIES

Three Loops 9½ Inches Wide.

Number of Sections	Length in Inches Over All	18½ in 8 ft per Section	12½ in 4½ ft per Section	26½ in 12 ft per Section	7 in 4 ft per Section
Square Feet of Heating Surface					
2	9	10	9	7	6
3	13	15	13	12	9
4	17	20	18	18	12
5	21	25	22	23	15
6	25	30	27	29	18
7	29	35	31	34	21
8	33	40	36	40	24
9	37	45	40	45	27
10	41	50	45	51	30
11	45	55	49	56	33
12	49	60	54	62	36
13	53	65	58	67	39
14	57	70	63	73	42
15	61	75	67	78	45
16	65	80	72	84	48
17	69	85	76	89	51
18	73	90	81	95	54
19	77	95	85	101	57
20	81	100	90	106	60
21	85	105	94	112	63
22	89	110	99	117	66
23	93	115	103	123	69
24	97	120	108	128	72



Empire Ornamental
Water or Steam

Monarch Pattern Four Loop.

Water or Steam Round or Square Top

LIST OF SIZES AND CAPACITIES

Four Loops 9½ Inches Wide

Number of Sections	Length in Inches Over All	42½ in 9½ ft per Section	18½ in 8 ft per Section	42½ in 9½ ft per Section	26½ in 5½ ft per Section	26½ in 1 ft per Section	10½ in 2½ ft per Section
Square Feet of Heating Surface							
2	9	19 4	16	11 4	10 8	8	5
3	13	29	24	20	16	12	7 6
4	17	38 8	32	28 8	21 4	16	10
5	21	48 4	40	37 4	26 8	20	12 6
6	25	58	48	46	32	24	15
7	29	67 8	56	54 8	37 4	28	17 6
8	33	77 4	64	63 4	42 8	32	20
9	37	87	72	72	48	36	22 6
10	41	96 8	80	80 8	53 4	40	25
11	45	106 4	88	89 4	58 8	44	27 6
12	49	116	96	98	64	48	30
13	53	125 8	104	106 8	69 4	52	32 6
14	57	135 4	112	115 4	74 8	56	35
15	61	145	120	124	80	60	37 6
16	65	154 8	128	132 8	85 4	64	40
17	69	164 4	136	141 4	90 8	68	42 6
18	73	174	144	150	96	72	45
19	77	183 8	152	158 8	101 4	76	47 6
20	81	193 4	160	167 4	106 8	80	50
21	85	203	168	176	112	84	52 6
22	89	212 8	176	184 8	117 4	88	55
23	93	222 4	184	193 4	122 8	92	57 6

Water or Steam. Round or Square Top

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SOVEREIGN RADIATORS.

Colonial Hospital Radiator.

PLAIN PATTERN ONLY.

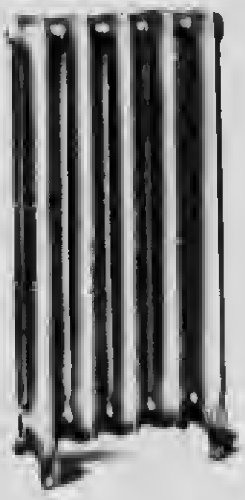


Fig. 71

MADE FOR WATER AND STEAM
TO ORDER ONLY

These Radiators are made with special wide hubs, making the distance from C to C of loops 4½ inches.

Surface Contents same as "Colonial" standard [illegible]

Carpet Foot.

MADE IN 2 LOOP ONLY

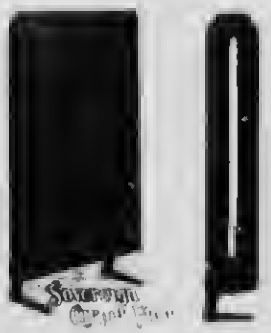


Fig. 70

Extra High Legs.

MADE IN 2 OR 3 LOOP.

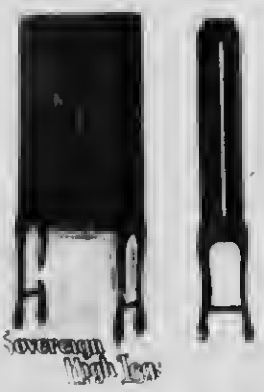


Fig. 71

Semi Circular Window Radiator.

PLAIN OR ORNAMENTAL.

Always send templets covering exact measurements

Fig. 68.

Monarch Pattern.

Fig. 72

Colonial Pattern

Fig. 73

All Radiators illustrated on this page made to order only.

Special data furnished on application

Style A.

Fig. 29.

Showing Supply Pipe on Side of Loop.

Style B.

Fig. 30.

Showing Supply Pipe on Bottom of Loop.

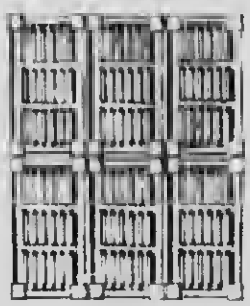
OTHER METHODS OF CONNECTING —

C Single Connections at Opposite Ends.
D —Twin Connections at Same Ends.
E Top Supply and Bottom Return at Opposite Ends.
F Top Supply and Bottom Return at Same Ends.
G One Pipe Connections on One End only for Steam
A and B put anywhere in Sections to Order.

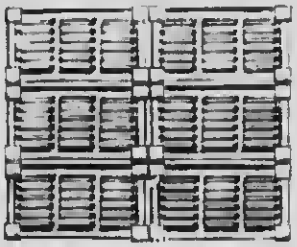
CONTINUED ON NEXT PAGE

SOVEREIGN RADIATORS.

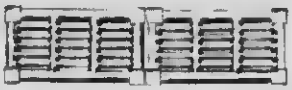
WALL RADIATORS "TAYLOR FORBES PATTERNS."



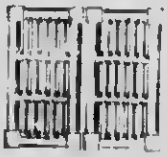
STYLE A
VERTICAL CONNECTED



STYLE B
HORIZONTAL CONNECTED WALL RADS



STYLE C
HORIZONTAL CONNECTED



STYLE D
VERTICAL CONNECTED

Illustrations show various forms of assembling. The Taylor-Forbes Wall Sections can be built to any number of sections to secure heating capacity desired.

SOVEREIGN VENTILATING RADIATORS

DIRECT-INDIRECT RADIATORS.

FOR STEAM ONLY.

PLAIN PATTERN.

FIG. 7

This new style with panel sides has been adopted because of its sanitary construction, and is fitted with loose box bases.

ADJUSTABLE BOX BASE.

BACK AIR INLET

As will be seen by above illustration, the dampers provided with this box base are arranged so that when the back air inlet is opened, the damper slide in the front of base is automatically closed, and vice versa. Where required, we can supply these bases with floor inlet dampers arranged to operate in the same manner.

TWO AND THREE COLUMN BASES			FOUR COLUMN BASES		
Number of Base Sections	Size of Collar for Back Air Inlet Inches	Size of Floor Inlet Damper Inches	Number of Base Sections	Size of Collar for Back Air Inlet Inches	Size of Floor Inlet Damper Inches
5	2½ X 5	5½ X 6½	5	2½ X 9	5½ X 6
6	2½ X 9	5½ X 6½	6	2½ X 14	5½ X 11
7	2½ X 9	5½ X 11	7	2½ X 14	5½ X 11
8	2½ X 9	5½ X 11	8	2½ X 14	5½ X 18
9	2½ X 9	5½ X 11	9	2½ X 14	5½ X 18
10	2½ X 14	5½ X 11	10	2½ X 19	5½ X 28
11	2½ X 14	5½ X 18	11	2½ X 19	5½ X 28
12	2½ X 14	5½ X 18	12	2½ X 19	5½ X 39½
13	2½ X 14	5½ X 18	13	2½ X 19	5½ X 39½
14	2½ X 14	5½ X 18	14	2½ X 19	5½ X 44½
15	2½ X 19	5½ X 28½	15	2½ X 24	5½ X 44½

NOTE.—Where Floor Inlet Dampers are required, it should be specially stated when ordering. Back Inlet Dampers will be furnished unless otherwise specified.

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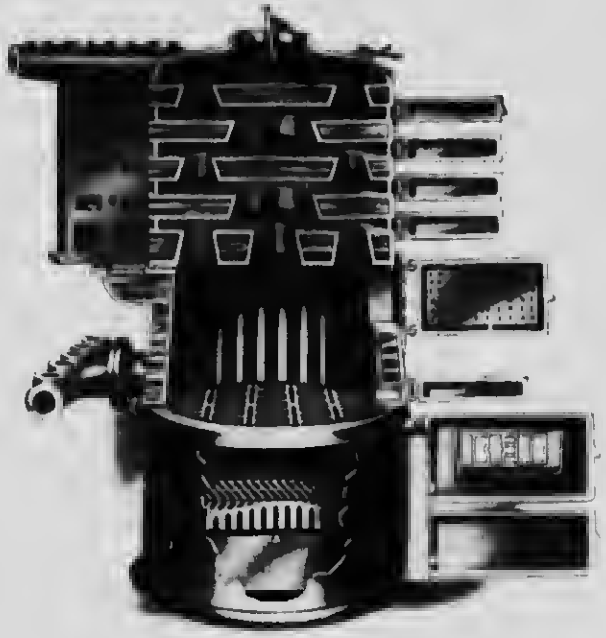
SOVEREIGN WATER BOILER



Showing Internal Construction in Sizes High or Low Base

Special Features:

Large Deep Fire Pot.
Large First Section.
Separate Clean-out Doors.
Large Water Post.
Flared Sections.

For Soft or Hard Coal.

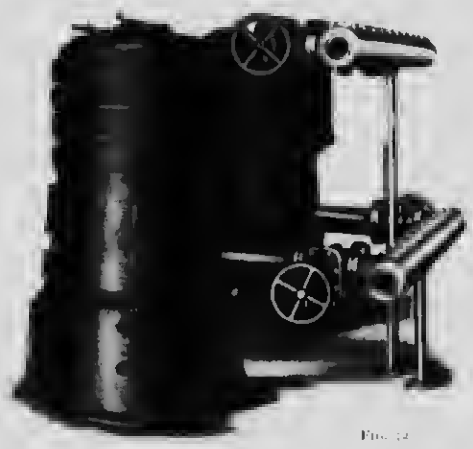


Fig. 32

Showing Arrangement of Twin, Triple and Quadruple Headers for Sovereign Boilers.

List Prices and Capacities

Size or Number	Capacity of Radiation Sq. Feet, not including Mains	Capacity of Inch Pipe not including Mains	List Price Low Base	List Price High Base	Height of Boiler Low Base Inches	Height of Boiler High Base Inches	Diameter Down Boiler Inches	Diameter at Base Ring Inches	Inside Depth of Fire Pot Inches	Depth of Fire Pot, Inside Inches	Area of Grate Inches	Diameter of Smoke Pipe Inches	Tapped Regular Openings. Flow Inches	Tapped Regular Openings. Return Inches	Tapped Single Openings. Flow Inches	Tapped Single Openings. Return Inches
0	170	900	$ 88 00	$ 93 00	45	50	20	24	10½	12¼	211	7	1 2	1 2	1¼	1¼
1	211	700	105 00	111 00	54	60½	20	24	10½	12½	211	7	1 2	1 2	1¼	1¼
2	115	1000	130 00	137 00	50	62½	22½	26½	19½	18¼	298	7	1 2	1 2	1	1
3	800	1500	190 00	199 00	57½	69	24½	30	21½	18¼	401	8	1 2	1 2	1	1
4	1050	2000	300 00	315 00	59½	69	27½	33½	24½	19¼	471	8	1 2	1 2	1	1
5	811	2500	390 00	409 00	60½	67½	30	33	26½	19¼	551	10	1 2	1 2	1	1
6	1100	3000	470 00	493 00	62	69	32	36½	28½	20¼	618	10	1 2	1 2	1	1
6½	1250	4250	415 00	436 00	61½	70½	34	40	30½	20¼	710	10	1 2	1 2	1	1
7	1500	4800	495 00	520 00	65	72	36	43	32½	21¼	820	12	1 2	1 2	1	1
8	2000	6000	475 00	505 00	65	72	40	45	36	21¼	1018	12	1 2	1 2	1	1

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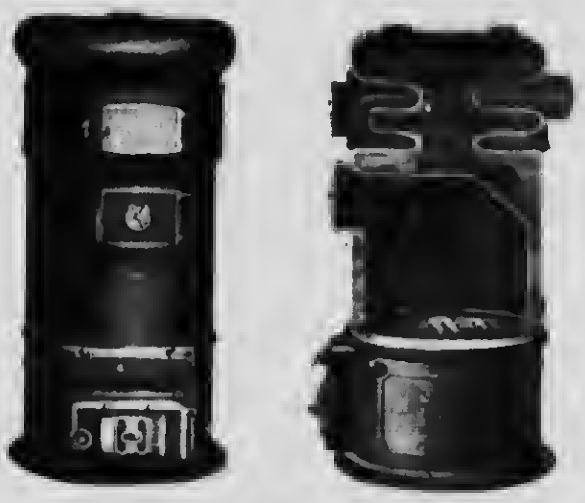
WESTERN JUNIOR BOILERS.

WESTERN JUNIOR HOT WATER BOILER.



WESTERN JUNIOR STEAM BOILER

RATINGS FOR WESTERN JUNIOR WATER BOILER

No. of Boiler	Capacity of Sq. Feet of Radiation not including Mains	Height of Boiler to Top of Inlet Inches	Outside Diam. Inches	Inside Diam. of Fire Pot Inches	Tappings Regular Flow Inches	Tappings Regular Return Inches	Diam. of Smoke Pipe Inches	List Price
1	210	45	24½	20	2	2	8	$105.00
2	410	48½	25	19	2 2½	2	8	115.00
3	590	52	28½	20½	2½	2	9	130.00
4	800	57	33	24	2½	2½	9	180.00
5	1000	57	33	26	2½	2½	9	200.00
6	1300	58	35½	28	3	2½	10	240.00
7	1600	58	39½	30	3	2½	10	300.00

RATINGS FOR WESTERN JUNIOR STEAM BOILER

No. of Boiler	Capacity of Radiation Sq. Feet not including Mains	Height of Boiler to Top of Outlet Inches	Outside Diam. Inches	Inside Diam. of Fire Pot Inches	Tappings Regular Flow Inches	Tappings Regular Return Inches	Diam. of Smoke Pipe Inches	List Price
1		45	24	19	2	2	8	$105.00
2	350	48½		19		2½	8	115.00
3	490	52	28	20	2½	2½	9	145.00
4	800	57	33	24	3	3	9	175.00
5	1000	57	33	26	2½	3	9	200.00
6	1300	58	35½	28	3	2½	10	240.00
7	1600	58	39½	30	3	2½	10	300.00

RATINGS

The foregoing steam boiler ratings are based on a standard of two (2) pounds pressure at the boiler, and the water ratings are based on a standard of water at a temperature of 180 F. as it leaves the boiler.

All our ratings are direct radiation, and, further, provide that, in estimating the size of boiler required, all piping (mains and risers, flow and return) shall be figured as radiating surface, in addition to the cast iron direct radiation to be used.

The surface in mains, if not properly covered, requires more boiler capacity than the same amount of direct radiation.

It is good practice to use a boiler with reserve capacity, and the surface in mains, as well as the radiators, should be figured on above basis, or due allowance made for other temperatures and pressure as well as loss of heat in the mains in determining required capacity.

When a pipe coil or cast-iron section is introduced into the fire pot, or a steam coil placed in a tank for the purpose of heating water for domestic use, additional capacity should be provided for in estimating size steam or water boiler required at the rate of 1¼ square feet of direct radiation for steam and 2 square feet of direct radiation for water for each gallon of water to be thus heated per hour.

Our ratings are based on the assumption that hard coal is to be used for fuel, and that boilers without a jacket shall be covered with a non-conducting material.

CONTINUED ON NEXT PAGE

CANADIAN WATER AND STEAM BOILERS

Canadian Water Boiler.

CANADIAN WATER BOILER WITH HEADERS

DIMENSIONS AND TAPPINGS

No. of Boiler	No. of Sections	Size of Fire Chamber Inches	Area of Grate Inches	Height Waterline Inches	Height of Boiler Inches	Length of Boiler Inches	Width of Boiler Inches	Size of Smoke Pipe Inches	Tappings Regular Flow Inches	Tappings Regular Return Inches	Capacity of Radiation, Sq. feet 150 Inches Mains	List
W 205	5	24 x 11½	1951	41	100	55	45	10	2½	2½	1125	$ 450 00
W 206	6	24 x 13½	815	41	100	61	45	10	2½	2½	1650	500 00
W 207	7	24 x 15½	1078	41	100	71	45	10	2½	2½	2000	450 00
W 208	8	24 x 17½	1300	41	100	81	45	10	2½	2½	2750	550 00
W 206	6	28½ x 13½	1000	47	105	61	51	12	2½	2½	2250	487 50
W 207	7	28½ x 15½	1200	47	105	71	51	12	2½	2½	2700	562 50
W 208	8	28½ x 17½	1400	47	105	81	51	12	2½	2½	3150	625 00
W 125	5	36 x 11½	1292	51	108	55	61	14	2½	2½	2125	500 00
W 126	6	36 x 13½	1491	51	108	61	61	14	2½	2½	2900	600 00
W 127	7	36 x 15½	1688	51	108	71	61	14	2½	2½	3475	687 50
W 128	8	36 x 17½	1876	51	108	81	61	14	2½	2½	4050	762 50
W 129	9	36 x 19½	2082	51	108	87	61	14	2½	2½	4625	847 50
W 1210	10	36 x 21½	2242	51	108	95	61	14	2½	2½	5200	925 00
W 105	5	44½ x 11½	1245	51	108	55	61	14	2½	2½	1150	625 00
W 106	6	44½ x 13½	1450	51	108	61	61	14	2½	2½	1975	775 00
W 107	7	44½ x 15½	1872	51	108	71	61	14	2½	2½	4800	862 50
W 108	8	44½ x 17½	2184	51	108	81	61	14	2½	2½	5025	1,037 50
W 109	9	44½ x 19½	2496	51	108	87	61	14	2½	2½	6450	1,150 00
W 1010	10	44½ x 21½	2808	51	108	95	61	14	2½	2½	7275	1,312 50
W 1011	11	44½ x 23½	3120	51	108	103	61	14	2½	2½	8100	1,462 50
W 106	6	51 x 13½	1850	55	82	61	83	16	2½	2½	5300	925 00
W 107	7	51 x 15½	2398	55	82	71	83	16	2½	2½	6625	1,087 50
W 108	8	51 x 17½	2900	55	82	81	83	16	2½	2½	7450	1,250 00
W 109	9	51 x 19½	3411	55	82	87	83	16	2½	2½	9425	1,462 50
W 1010	10	51 x 21½	3915	55	82	95	83	16	2½	2½	10300	1,575 00
W 1011	11	51 x 23½	4386	55	82	103	83	16	2½	2½	11575	1,725 00
W 1012	12	51 x 25½	4915	55	82	105	83	16	2½	2½	13050	1,925 00
W 1011	11	51 x 23½	4386	55	82	103	83	16	2½	2½	12725	2,047 50

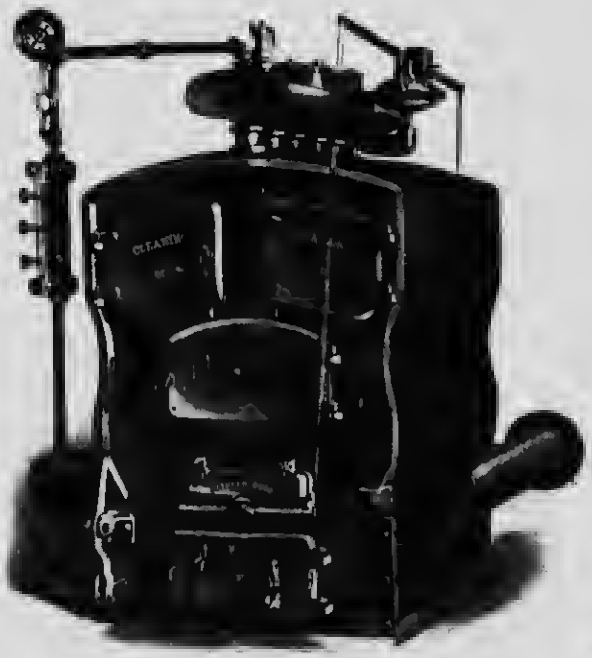
This is the only type of Boiler on the market that can be repaired without disconnecting or taking down the whole boiler.

Canadian Steam Boiler.

CANADIAN STEAM BOILER WITH HEADERS

DIMENSIONS AND TAPPINGS

No. of Boiler	No. of Sections	Size of Fire Chamber Inches	Area of Grate Inches	Height Waterline Inches	Height of Boiler Inches	Length of Boiler Inches	Width of Boiler Inches	Size of Smoke Pipe Inches	Tappings Regular Flow Inches	Tappings Regular Return Inches	Capacity of Radiation, Sq. feet 150 Inches Mains	List
S 215	5	24 x 11½	1951	41	100	55	45	10	2½	2½	900	$ 375 00
S 216	6	24 x 13½	815	41	100	61	45	10	2½	2½	1000	425 00
S 217	7	24 x 15½	1078	41	100	71	45	10	2½	2½	1300	450 00
S 218	8	24 x 17½	1300	41	100	81	45	10	2½	2½	1450	562 50
S 206	6	28½ x 13½	1000	47	105	61	51	12	2½	2½	1450	512 50
S 207	7	28½ x 15½	1200	47	105	71	51	12	2½	2½	1625	581 50
S 208	8	28½ x 17½	1400	47	105	81	51	12	2½	2½	1900	650 00
S 125	5	36 x 11½	1292	51	108	55	61	14	2½	2½	1300	525 00
S 126	6	36 x 13½	1491	51	108	61	61	14	2½	2½	1800	625 00
S 127	7	36 x 15½	1688	51	108	71	61	14	2½	2½	2150	712 50
S 128	8	36 x 17½	1876	51	108	81	61	14	2½	2½	2450	787 50
S 129	9	36 x 19½	2082	51	108	87	61	14	2½	2½	2800	875 00
S 1210	10	36 x 21½	2242	51	108	95	61	14	2½	2½	3200	975 00
S 105	5	44½ x 11½	1245	51	108	55	61	14	2½	2½	1900	650 00
S 106	6	44½ x 13½	1450	51	108	61	61	14	2½	2½	2550	812 50
S 107	7	44½ x 15½	1872	51	108	71	61	14	2½	2½	2900	900 00
S 108	8	44½ x 17½	2184	51	108	81	61	14	2½	2½	3600	1,025 00
S 109	9	44½ x 19½	2496	51	108	87	61	16	2½	2½	4000	1,137 50
S 1010	10	44½ x 21½	2808	51	108	95	61	16	2½	2½	4450	1,262 50
S 1011	11	44½ x 23½	3120	51	108	103	61	16	2½	2½	4950	1,412 50
S 106	6	51 x 13½	1850	55	82	61	83	16	2½	2½	3250	987 50
S 107	7	51 x 15½	2398	55	82	71	83	16	2½	2½	3800	1,125 00
S 108	8	51 x 17½	2900	55	82	81	83	16	2½	2½	4450	1,237 50
S 109	9	51 x 19½	3411	55	82	87	83	16	2½	2½	5400	1,525 00
S 1010	10	51 x 21½	3915	55	82	95	83	16	2½	2½	6800	1,812 50
S 1011	11	51 x 23½	4386	55	82	103	83	16	2½	2½	7650	1,962 50
S 1012	12	51 x 25½	4915	55	82	105	83	16	2½	2½	7750	2,062 50
S 1011	11	51 x 23½	4386	55	82	103	83	16	2½	2½	7200	1,900 00



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TANK HEATERS.

Taylor Tank Heater.
FOR HOT WATER.

Fig. 64

DIMENSIONS AND PRICE LIST

No. of Boiler	Heating Capacity	Tank Capacity	Height of Heater Inches	Outside Diam. Inches	Size of Grate Inches	Tappings Flow Inches	Tappings Return Inches	Diam. of Smoke Pipe Inches	List Price
				Low Base					
210	150	675	15½	24	20	3	1	7	$100 00
				High Base					
211	150	675	31½	24	20	1	1	7	108 00

Improved Giant Steam Boiler.
FOR ANY KIND OF FUEL.

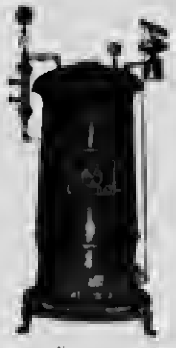


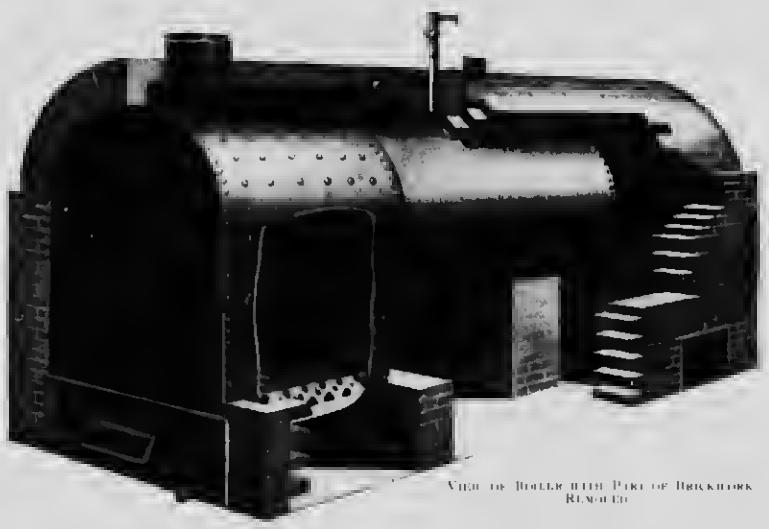
Fig. 64 (a)

Fig. 64 (b)

DIMENSIONS AND PRICE LIST

No. of Boiler	Heating Capacity	Height of Boiler Inches	Outside Diam. Inches	Size of Grate Inches	Tappings Flow Inches	Tappings Return Inches	Diam. of Smoke Pipe Inches	List Price
195	100	41½	18	12	1	1	6	$ 91 00
195	175	49½	19	19	2½	2½	6	110 00
208	275	52½	24	20	1	1	7	150 00

DETROIT FIREBOX BOILERS.



View of Boiler with Part of Brickwork Removed

SPECIFICATIONS OF DETROIT FIREBOX BOILERS

Number		100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	
Diameter Boiler	Inches	24	24	30	30	30	30	30	30	42	42	42	48	42	48	54	54	60	60	66	66	72
Length Boiler over all	Feet	8½	9½	10½	11½	8½	9½	9½	10½	8½	10	11½	10½	12	11½	14	10½	15½	18	16	18	16
Width of Firebox	Inches	19	19	24	24	24	30	30	30	36	36	36	42	42	42	48	48	54	54	54	60	66
Length of Firebox	Inches	20	20	20	32	48	32	48	48	48	32	50	32	50	50	50	62	62	62	62	62	62
Height of Firebox	Inches	30	30	48	48	48	48	48	48	48	48	48	48	48	48	48	48	54	54	54	60	66
Heating Surface	Square Feet	71	93	136	144	145	190	191	200	282	290	311	390	412	398	555	590	630	662	673	692	725
Square Feet of Steam Capacity as rated for each square foot of heating surface		0.8	2.1	2.2	2.2	2.16	2.2	2.1	2.16	2.2	2.2	2.8	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Area of Grate	Square Feet	2.16	3.1	4.1	5.3	6.1	6.7	8.10	9.2	9.8	11.6	11.6	13.2	13.2	15.1	16.6	18.2	20.11	22.8	25.10	25.1	28.1
Square Feet of Heating Surface for each square foot of Grate		28	30	27	27	24	28	28	28	29	25	28	30	30	30	33	33	30	30	28	28	26
Diameter of Breechbox	Inches	10	10	12	12	16	16	18	18	20	20	22	22	24	24	28	28	32	32	32	36	36
Diameter of Stack	Inches	10	10	12	12	14	14	16	16	18	18	20	20	22	22	26	26	30	30	30	34	34
Minimum Height Of Stack	Feet	30	30	30	30	30	30	30	35	35	35	35	45	50	50	50	50	55	55	60	60	60
Diameter of Stack for Two Boilers	Inches												24	26	28	30	32	34	36	36	40	42
Minimum Height of Stack for Two Boilers	Feet												50	50	50	50	50	55	60	60	70	70
Size of Steam Opening	Inches	2½	2½	3	3	3	3	3	3	4	4	4	4	6	6	6	6	8	8	8	8	8
Size of Return	Inches	2	2	2½	2½	3	3	3	3	3	3	3	4	5	5	5	5	6	6	6	6	6
Size of Safety Valve	Inches	1½	1½	1½	1½	2	2	2	2	2½	2½	2½	2½	3	3	3	3	4½	4½	4½	4	4
Number and Size of Supply and Return Openings for Water		1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1
Height of Water Line	Inches	48	48	54	54	54	60	60	60	64	64	64	68	68	68	68	68	72	72	78	78	84
Height from floor to top of brickwork	Inches	63	64	70	70	70	77	77	77	81	81	81	90	90	90	90	90	100	100	111	111	120

CLARE BROS. & CO., LIMITED

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MECHANICS' SUPPLY CO.,
QUEBEC, QUE.

PRODUCTS. We manufacture "HECLA" AND "HILBORN" WARM AIR FURNACES, COMBINATION WARM AIR AND HOT WATER HEATING EQUIPMENT, HOT WATER BOILERS, HOT WATER RADIATORS, WARM AIR REGISTERS AND VENTILATORS, and a complete line of "PENINSULAR" STOVES AND RANGES.

"HECLA" WARM AIR FURNACES. We desire to call the attention of architects and others to "HECLA" Warm Air Furnaces made in the following sizes:

No.	Dia. of Fire Pot.	Height	Size of Smoke Pipe	Capacity
116	16"	44"	7"	10,000 cubic feet
119	19"	45"	8"	15,000 cubic feet
122	22"	47"	8"	22,000 cubic feet
125	25"	49"	8"	33,000 cubic feet
128	28"	52"	9"	55,000 cubic feet

CAPACITY. The table given above is based on climatic conditions found in the cold parts of the country. Where a building occupies an exceptionally exposed position, it is advisable to use a size larger furnace.

SIZE OF PIPES. The following table may be used in determining the size of registers and pipes for heating rooms specified and is based on climatic conditions as found in the cold sections of the country.

Average Size of Rooms.	Cubic feet of air that can be heated in rooms one side exposed	General Size of Reg. used	Hot Air Capacity of Reg. Inches	Hot Air Pipe to be used Size, Inches.	Hot Air Pipe to be used Cap. Inches	If wall pipes are used, inside size of same to be
11 x 14 x 10	1,600	8 x 10	53	8	50	4 x 12
12 x 15 x 10	1,800	9 x 12	72	9	64	4 x 16
12 x 17 x 10	2,200	10 x 12	80	10	78	4 x 20
13 x 17 x 10	2,300	10 x 14	93	10	78	6 x 12
18 x 18 x 10	2,700	12 x 14	102	12	113	6 x 14
17 x 20 x 10	3,500	12 x 15	120	12	113	6 x 16
20 x 22 x 10	4,500	12 x 19	152	13	133	8 x 14
18 x 25 x 12	5,500	14 x 22	205	14	154	8 x 16
18 x 30 x 12	6,500	16 x 20	214	16	201	10 x 16
19 x 35 x 12	8,000	20 x 20	267	18	254	12 x 20

COLD AIR. The capacity of the cold air pipes should be at least 75 per cent. of the capacity of the warm air pipes, and best results are obtained by taking cold air pipes from the north and west when these sides of the building are exposed.

CONTINUED ON NEXT PAGE

THE "HECLA" WARM AIR FURNACE.

STEEL RIBBED FIRE POTS. The radiation of "HECLA" Furnaces is increased by the use of steel flanges or ribs fused to the firepots, as shown above. This steel-ribbed pot increases the radiating power of the firepot about 200 per cent. The quick radiation thus provided makes for economy of fuel, greater durability, and supplies warm, fresh air instead of super-heated air.

FUSED JOINTS. Fused joints are used in connecting the steel and cast iron parts that enter into the construction of "HECLA" Furnace domes. The iron and steel are fused together at a white heat, and the joint thus made is water-tight, air-tight, and cannot work loose as a cement or bolted joint will.

PURE WARM AIR. Pure warm air, free from gas, dust or smoke, is made possible by the above-mentioned features.

CAST IRON COMBUSTION CHAMBER. This improvement in construction over the combustion chamber of the steel type has to do with durability only. Instead of a sheet of steel from $\frac{1}{16}$ to $\frac{1}{8}$" in thickness, the cast iron combustion chamber presents a resistance of from $\frac{3}{8}$ to $\frac{1}{2}$ an inch against the action of the fire.

NO POKER. No poker is necessary with a "HECLA." Each grate bar can be shaken separately, and in this way only that part of the fire requiring it need be shaken down. The rest of the fire remains undisturbed.

FUEL. Hard coal, lignite, coke and wood, give excellent results in "HECLA" Furnaces.

AGENTS. Tinsmiths in almost every town, city and village handle the "HECLA" Furnace. If you want to communicate direct, write the nearest Branch House or communicate direct with our Head Office at Preston.

CATALOGUES. Catalogues covering "HECLA" Furnaces, "HILBORN" Furnaces, "IMPERIAL" Hot Water Boilers, and "PENINSULAR" Stoves and Ranges will be sent upon request.

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

TORONTO. MONTREAL. WINNIPEG. VANCOUVER.

PIPE AND BOILER COVERINGS.

PRODUCTS. PIPE AND BOILER COVERINGS; J-M ASBESTO-SPONGE FELTED, J-M ASBESTOCEL, J-M WIRE-STITCHED ANTI-SWEAT.

Also, J-M 85% MAGNESIA, J-M ASBESTOS FIRE FELT, J-M YTTRIBESTOS, J-M AIR CELL, J-M ZERO, J-M KEYSTONE PLUMBING, J-M BRINE AND AMMONIA, J-M SHEETS AND BLOCKS for Boilers, Heaters, etc., J-M ASBESTOS AND MAGNESIA INSULATING CEMENTS, J-M SECTIONAL UNDERGROUND CONDUIT.

For complete list of J-M Building Materials, see our Catalogue in Roofing Section.

J-M ASBESTO-SPONGE FELTED PIPE COVERING. J-M Asbesto-Sponge Felted Pipe Covering, for insulating high-pressure and superheated steam pipes, is made of layers of thin felt composed of pure, long-fibred asbestos and granulated sponge. Furnished in 3-foot sections, in thicknesses of ½ to 3 inches, to fit all standard sizes of pipe. The sections are cut through one side only to facilitate application.

Advantages. J-M Asbesto-Sponge Felted Pipe Covering, like sponge, is full of air cells, which are thoroughly sealed by reason of the laminated construction. The enormous amount of dead air (the greatest non-conductor) thus confined makes the most efficient high-pressure pipe covering. This covering can be removed and replaced as often as desired, without injury. It materially reduces the temperature of engine rooms, adding to comfort and efficiency of operatives.

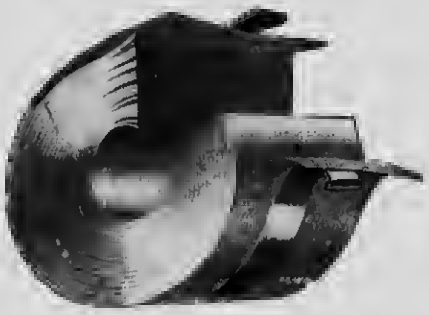
Durability. Being made of many layers of strong felt, vibration or rough usage will not crack, break nor cause J-M Asbesto-Sponge Felted Covering to crumble or lose its insulating efficiency. It has been found in perfect condition after more than fifteen years' service on underground pipes.

Efficiency. The high insulating efficiency of J-M Asbesto-Sponge Felted Pipe Covering is proven by the following results of a test made by Mr. George M. Barrus, and published in the official publication of the American Society of Mechanical Engineers.

100 POUNDS PRESSURE AND UP.

COAL CONSUMPTION FOR 10,000 SQ. FEET OF SURFACE HEATED 365 DAYS PER YEAR, 24 HOURS PER DAY.

Kind of Covering	Tons of Coal Consumed	Cost of Coal at $3.00 per Ton	Cost of Covering Applied
Bare Pipe.	4,1000	$12,000.000	
Ordinary Covering	791	2,373.000	$1,320.000
J-M High-Pressure Covering. . .	585	1,755.000	1,980.000



J-M ASBESTO-SPONGE FELTED PIPE COVERING.

These tests proved that J-M Asbesto-Sponge Felted Covering saves *26 per cent. more coal than ordinary coverings.* It will, therefore, be seen that by re-covering with J-M Asbesto-Sponge Felted Covering pipes now insulated with ordinary coverings, a saving of $780.000 can be made in every 1,000 tons of coal burned, figuring the cost of coal at $3.00 per ton.

Specifications. On connections from boilers to main steam header, and on main steam header, apply J-M Asbesto-Sponge Felted Sectional Covering in two layers, each 1 inch thick, in such a manner that all joints will be "staggered" or "broken."

Cover fittings in connection with these pipes with J-M Asbesto-Sponge Cement Felting, to a thickness corresponding to adjoining pipe covering. Over all this covering apply an additional protection of 8-ounce canvas neatly sewed on.

On flanges of these pipes, apply J-M Asbesto-Sponge Felted Sectional Covering in such a manner that same can be removed and replaced without injury to covering, and finish same with 8-ounce canvas neatly pasted on.

On all other pipes of the High-Pressure System apply J-M Asbesto-Sponge Felted Sectional Covering 1 inch thick, with its usual ranges finish and bands complete, covering fittings with J-M Asbesto-Sponge Cement Felting to a thickness corresponding to adjoining covering, and finished with canvas neatly pasted on. Lacquered metal bands are to be applied at at least 18-inch intervals on this covering.

Cover tops of boilers and boiler drum-ends with J-M Asbesto-Sponge Felted Sheets, 1½ inches thick, secured in place with galvanized wire cables and hexagonal wire netting, and finish same hard and smooth with J-M Asbestos Cement, No. 302, ½ inch thick.

Cover smoke breeching and connections from boilers to vertical smoke-stack with 1½ inch thick J-M Asbesto-Sponge Felted Sheets, thoroughly secured with galvanized wire cables and hexagonal wire netting with air space 1 inch deep, formed with wire netting with suitable offsets. Finish over sheets with J-M Asbestos Cement, No. 302, ½ inch thick, trowelled hard and smo

Cover blow-off tank, return tank, pump governor, steam separators, high pressure drip traps and tank in same manner as breeching, but omit air space.

On all covering exposed to weather apply two coats of lead and oil paint, of colours selected by architect. On other coverings apply two coats J-M Asbestos Fireproof Paint.

CONTINUED ON NEXT PAGE

J-M ASBESTOCEL SECTIONAL PIPE COVERING.

J-M Asbestocel Pipe Covering, for hot-water heating pipes and low and medium pressure steam pipes, is built of successive layers of plain and corrugated asbestos paper on the arch principle, the channels running *around* the pipe. Made in thicknesses of $\frac{1}{2}$ to 3 inches, to fit standard pipes $\frac{1}{2}$ to 16 inches in diameter.

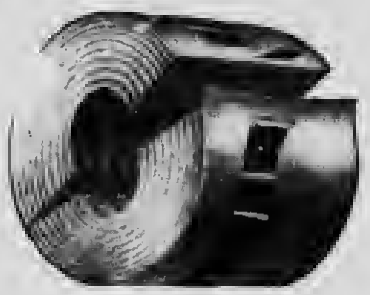
Advantages. J-M Asbestocel is the most efficient low-pressure covering, because it confines the greatest amount of dead air. It is the only low-pressure covering which confines air and lots of it in an absolutely *dead* state. The air cells run *around* the pipe each cell entirely separate; thus the spaces are so small that the air has no chance to circulate. J-M Asbestocel Covering is built on the arch principle, and is, therefore, far *stronger* than other low-pressure coverings doesn't crush down under weight *lasts longer* than any other. It is absolutely fireproof, and prevents the rusting of pipes by protecting them from moisture.

Efficiency. The insulating efficiency of J-M Asbestocel Pipe Covering is proven by results of following tests in Vol. 23 of the Transactions of the American Society of Mechanical Engineers. Tests were made on 100 lineal feet of 2-inch pipe, carrying steam at 80 pounds pressure. Calculations of savings are based on plant working 300 days, of 10 hours each, with temperature of room about 65 deg. Fahr.

EFFICIENCY TEST DATA

Name of Pipe Covering.	Condensation per Hour	Net Tons of Coal Consumed per Year	Net Tons of Coal Saved by Use of Covering.	Cost of Coal per Net Ton	Net Saving on Cost of Coal per Annum by Use of Covering.	Approx. Cost of Covering.
Bare Pipe	59 lbs.	7.76*		$4.00	$31.04 loss	
J-M Asbestocel	11.47	1.81	5.95	4.00	23.72 savings	$16.20

* Standard coal as per 150th code of boiler tests, that is, one pound of coal evaporating about 11 pounds of water



J-M Asbestocel Sectional Pipe Covering.

As there are about 64 square feet of pipe surface in 100 lineal feet of 2-inch bare pipe, the annual saving by the use of J-M Asbestocel Covering amounts to about 35 cents per square foot of heated surface. Thus, the first year's saving will pay for the cost of covering and show a large interest return in addition. After the first year, the entire annual saving by the use of this covering is *clear profit.*

Specifications. On low-pressure steam and hot-water heating pipes, and on hot water supply pipes, together with returns and drips from former and circulation lines of latter, apply J-M Asbestocel Sectional Covering, 1 inch thick, with regular canvas finish and lacquered metal bands on pipes, and J-M Asbestos Cement, No. 302, to a corresponding thickness on all fittings, traps, etc., in connection with these pipes, the cement to be finally jacketed with canvas pasted on to correspond with adjoining pipe covering.

Where covering is exposed to view, apply over same an additional protection of 8-ounce canvas neatly sewed on, and, where exposed to weather, a further protection of two coats of lead and oil paint. In all other places covering to be finished with two coats of J-M Asbestos Fireproof Paint.

Cover hot-water heater with J-M Asbestos Cement, No. 302, 2 inches thick, secured with galvanized hexagonal wire netting and finished hard and smooth on exterior. Cover hot-water tank with 1 inch thick J-M Asbestocel Sheets, secured with galvanized hexagonal wire netting and finished hard and smooth with $\frac{1}{2}$ inch thick J-M Asbestos Cement, No. 302.

Cover casings with heating stacks and registering ducts from same to vertical flues in walls with J-M Asbestocel Sheets, 1 inch thick, joints "pointed up" with Asbestos Cement, and finally finished with 8-ounce canvas neatly sewed on.

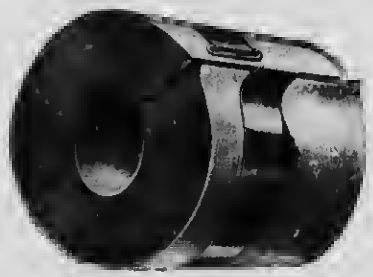
Paint heater, tank, and stack and duct coverings to correspond with pipe covering.

J-M WIRE-STITCHED ANTI-SWEAT SECTIONAL PIPE COVERING.

J-M Wire-Stitched Anti-Sweat Sectional Pipe Covering, for insulating cold-water pipes, is made of alternate layers of waterproof insulating paper and wool-felt paper, securely stitched together so that the covering does not depend upon paste or glue to hold it in shape. It is finished with a canvas jacket and has metal bands for fastening.

Made in 3-foot sections in thicknesses of $\frac{1}{2}$, $\frac{3}{4}$ and 1 inch, to fit all standard sizes of pipe. One inch thickness is recommended where pipes run through rooms at a temperature of 80 deg. Fahr. and upwards.

Advantages. When pipes pass through atmospheres of higher temperature than the water inside them, condensation takes place on the surface of the pipes, which results in dripping. J-M Anti-Sweat Covering prevents this dripping by insulating the cold pipe from the warm atmosphere, thus preventing considerable damage to plaster, furnishings, etc. It is especially advantageous for insulating cold-water drinking systems in office buildings, apartment houses, hotels and similar buildings.



J-M Wire Stitched Anti-Sweat Sectional Pipe Covering.

THE JAMES SMART MFG. CO., LIMITED

HEAD OFFICE AND FACTORY:
BROCKVILLE, ONT.

WESTERN OFFICE: WINNIPEG, MAN.

PRODUCT. THE KELSEY WARM AIR GENERATOR.

FOR PUBLIC BUILDINGS. Churches, Schools, etc., and for large residences, where a combined Heating and Ventilating System is required, the Kelsey Warm Air Generator has proven its worth.

FEATURES. The feature of the Kelsey System of Warm Heating is the battery of Zig-Zag Cast Iron Heat Tubes that surround the fire-grate.

The fresh air from the under-draft is thoroughly heated as it turns and twists up through these heat tubes into the circulating pipes.

LARGE RADIATING SURFACE. Making these tubes Zig Zag increases their radiating surface.

A Kelsey has 60 square feet of radiating surface for one square foot of grate.

CAPACITY TO RETAIN HEAT. All the heat from the fuel is concentrated in these heavy tubes, which form the combustion chamber. From their immense weight they store up the heat and radiate it gradually.

20 TO 30% SAVING IN COAL. The large radiating surface of these tubes and their capacity to retain heat effect a saving of 20 to 30% in coal bills.

SPECIALLY ADAPTED FOR USE WITH POWER FAN. The capacity of the Kelsey to heat air under high velocity makes it especially well adapted for a combined heating and ventilating system, used in connection with a power fan or blower.

It is this feature that especially recommends the Kelsey for heating large residences, hotels, churches, schools, etc.

THE KELSEY ZIG ZAG HEAT TUBE

The weight of each of these tubes is about 30 lbs. There are from 8 to 10 of these tubes in each Kelsey Generator.

SECTIONAL VIEW OF KELSEY GENERATOR, SHOWING POSITION OF ZIG ZAG CAST IRON HEAT TUBES THAT FORM THE COMBUSTION CHAMBER

THE BATTERY SYSTEM FOR LARGE BUILDINGS. Kelsey Generators in Battery form, installed in connection with the Kelsey Mechanical Fan, provide a combined heating and ventilating system that for large buildings is incomparable.

Two or more Kelsey Generators are installed under a single dome casing. During the fall or spring seasons one generator will often be found sufficient for all requirements, and a big economy in fuel can be effected.

INFORMATION. Write for information regarding our lower-priced furnaces.

TESTIMONIAL.

ST. THOMAS, ONT., Feb. 1st, 1911.

THE JAMES SMART MFG. CO.,
Brockville, Ont.

Gentlemen,—The St. Thomas Board of Education has had sufficient experience in the use of the Kelsey Warm Air Generator to warrant me in expressing the unqualified satisfaction the use of these furnaces has given.

Beginning in 1908, the system then in use in the Balaclava Street School, burning soft coal, was discarded, and, after careful investigation by a special committee appointed to enquire into the merits of various systems for heating and ventilation, the Kelsey was adopted. This is a 12-room school, 4 stories high.

That the Board made no mistake in accepting the recommendation of the special committee upon this important matter is best shown by the action of the Board in 1910. That Board unanimously approved of the recommendation of the Building and Grounds Committee to replace the system in use in Welbank Street School, also a 12-room building, with the Kelsey system.

Having eight furnaces in use in 1911, Scott Street School was enlarged, and again the Kelsey was the choice of the Board.

There are now three large schools being satisfactorily heated and ventilated by the Kelsey system. I think this is the very best evidence of satisfaction we can expect. After being tried and tested, the system has won approval upon merit alone.

I am, yours sincerely,

(Signed) H. W. TALLMAN, Sec.-Treas.,
St. Thomas Board of Education.

SIZES, WEIGHTS AND CAPACITIES OF KELSEY WARM AIR GENERATORS

Number	Diameter of Grate	Diameter of Fire Pot	Diameter of Base	Diameter of Casing	Height of Casings	Height Cased	Smoke Pipe	Weight of Castings	Heating Capacity
	In.	In.	In.	In.	In.	In.	In.		Cubic Feet
14	14	14	38	36	45	38	7	1100	3,300 to 8,000
16	16	16	42	40	48	62	7	1275	8,000 to 13,000
18	18	18	46	44	54	68	7	1700	12,000 to 20,000
21	21	21	51	51	55	69	9	2030	13,000 to 33,000
24	24	24	56	54	55	69	9	2330	24,000 to 45,000
30	30	30	64	60	62	73	9	3300	45,000 to 90,000

These capacities are only approximate, as everything depends upon the building in which the heater is to be installed.

The minimum capacities apply more to houses or buildings where a number of pipes are used, and the maximum to churches or buildings where one large pipe from the top of the heater is all that is required.

Some houses are more easily heated than others, and, among many things to be considered, are good construction, wall and glass exposure and elevation of pipes in basement.

SHELDONS LIMITED

HEAD OFFICE AND WORKS: GALT, ONT.

TORONTO OFFICE: 609 KENT BUILDING,

TORONTO, ONT.

AGENTS:
MESSRS. ROSS & GREIG,
412 ST. JAMES ST., MONTREAL, QUE.
MESSRS. GORMAN, CLANCEY & GRINDLEY, LTD.,
CALGARY AND EDMONTON, ALTA

AGENTS:
MESSRS. WALKER'S LTD.,
259 STANLEY ST., WINNIPEG, MAN
MESSRS. ROBERT HAMILTON & CO., LTD.,
BANK OF OTTAWA BLDG., VANCOUVER, B.C.

FIG. 292.—DOUBLE WIDTH KEITH WHEEL

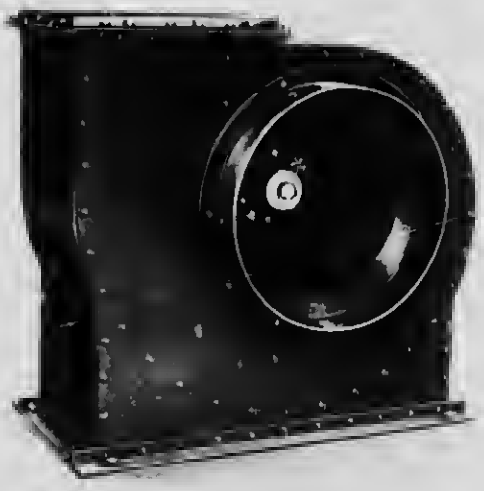


FIG. 299.—INLET SIDE OF SINGLE WIDTH KEITH FAN

KEITH FAN.

Fig. Nos. 299 and 292 show the Keith Fan complete and the wheel separate. This fan is a product of Messrs. Keith & Blackman Co., of London, England, and was only brought to its present perfect design after years of study and experimental work. We secured the Canadian rights for this fan in 1912, and the great success we have had with it in this short time substantiates the claims made for it by Messrs. Keith & Blackman in its extended use in the British Islands and over the continent of Europe generally.

It has been adopted by the British and German Naval Departments in preference to other makes of fans, and to a certain extent by the American Navy. The Cunard S.S. Line, in 1912, installed the Keith Fan for the ventilation and cooling of the central turbine engine-room in the S.S. Lusitania, and the great engine-rooms of the S.S. Aquitania, of the same line, are being equipped with these fans to supply over 16,000,000 cubic feet of air per hour.

As further evidence of superiority, we might cite the case of the Singer Building in New York City. The Keith Fan was installed in the engine-room or power-house of this building to replace another make of fan. To properly ventilate and cool this great engine-room, 7,200,000 cubic feet of air per hour was supplied at an expenditure of 22-horse power only. The installation is a complete success, the temperature never being more than 7 deg. Fahrenheit above the exterior temperature.

The points on which we claim superiority for the Keith Fan are: Large volumes of air at low speeds, noiseless operation and highest efficiency.

VENTILATING SYSTEMS.

As many installations present new problems, the figures and particulars given herein must be considered as general. However, the following information, if used with good judgment, will give entire satisfaction in the ordinary installation. We wish to advise engineers and architects that we have a qualified engineering staff ready to give advice at any time, and that we are prepared to make drawings and specifications of heating and ventilating systems free of charge.

CONTINUED ON NEXT PAGE

CALCULATIONS.

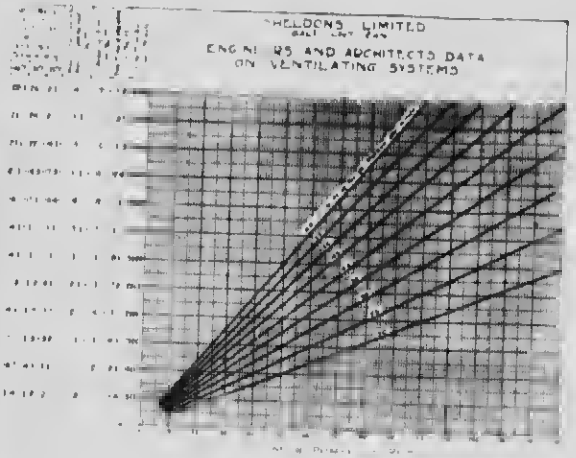


TABLE NO. 1

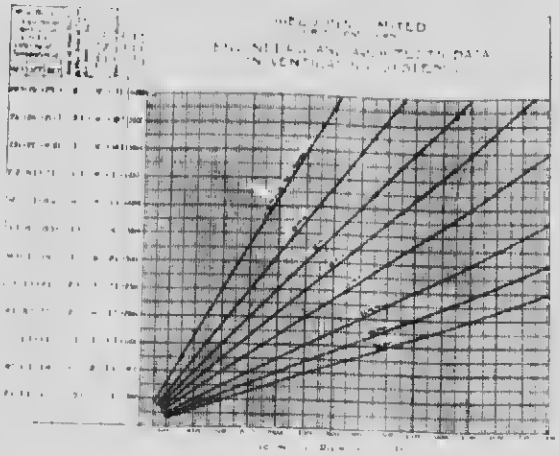


TABLE NO. 2

Tables Nos. 1 and 2 give in graphical form the quantities of air, boiler horse-powers, and areas of registers, flues ducts and fresh air inlets required for ventilation in office buildings, schools, churches, etc.

Table No. 1 is applicable where the ventilation is based on a definite quantity of air per person per minute, while Table No. 2 is based on a time air change in a room or building.

EXAMPLE

Consider a school containing 10 class-rooms and 2 lunch or play rooms, each class-room to contain 43 persons 43 pupils and teacher; and each lunch-room to be 25 feet long by 30 feet wide by 12 feet high. Allow 30 cubic feet per minute per person in the class-rooms and a 20-minute air change in the lunch-rooms. The temperature of the rooms to be 70 deg. Fahrenheit when the outside temperature is −20 deg.

On Table No. 1 follow out the line passing through the point of intersection of the lines representing 43 persons and 30 cubic feet of air per minute per person, and read off from the vertical axis the following quantities and areas:—

Cubic feet of air per minute	= 1,290.
Free area of register	= 3.68 sq. ft.
Area of flue and branch duct	= 2.58 sq. ft.
Total amount of air for 10 class-rooms	= 1,290 × 10 = 12,900 cubic feet per minute.

The cubical contents of each lunch room are 25 × 30 × 12 = 9,000 cubic feet.

On Table No. 2 follow out the line passing through the intersection of the lines representing 9,000 cubic feet in room and 20-minute air change, and read off from vertical axis:—

Cubic feet of air per minute	= 450.
Free area of register	= 1.26 sq. ft.
Area of branch duct (from flue area column)	= 0.9 sq. ft.
Cubic feet of air required for 2 lunch-rooms	= 450 × 2 = 900.
Cubic feet of air required for 10 class-rooms and 2 lunch-rooms	= 12,900 + 900 = 13,800.

Add 10% to the above quantity of air for good measure—a total of 15,180 cubic feet of air for the entire school.

As Table No. 1 only reads to 6,000 cubic feet of air, divide 15,180 by 3, which gives 5,060 cubic feet. Read off the properties corresponding to 5,060 cubic feet of air, and obtain the following:—

Area of main duct	= 5.06 sq. ft.
Minimum area of fresh air inlet	= 5.06 sq. ft.
Boiler horse-power required	= 19.3.

Multiply the above by 3, which gives the totals for the entire school as follows:—

Cubic feet of air per minute	= 15,180.
Area of main duct	= 15.18 sq. ft.
Min. area of fresh air inlet	= 15.18 sq. ft.
Boiler horse-power required	= 57.9.

ARRANGEMENT OF APPARATUS.

Fig. No. 3 shows an apparatus lay-out in plan. The spacing and arrangement of the different parts of the apparatus are such as to give the air a direct and uniform flow throughout and to allow free access to all the parts. The distances between the parts should not be decreased from those shown, but can be increased to advantage in many cases, particularly the distance from the fresh air inlet to the tempering coils and from the reheating coils to the fan.

Where it is at all possible, there should be a free space of 3 feet around the apparatus, to allow of attendance and free access to any part that might have to be repaired or replaced.

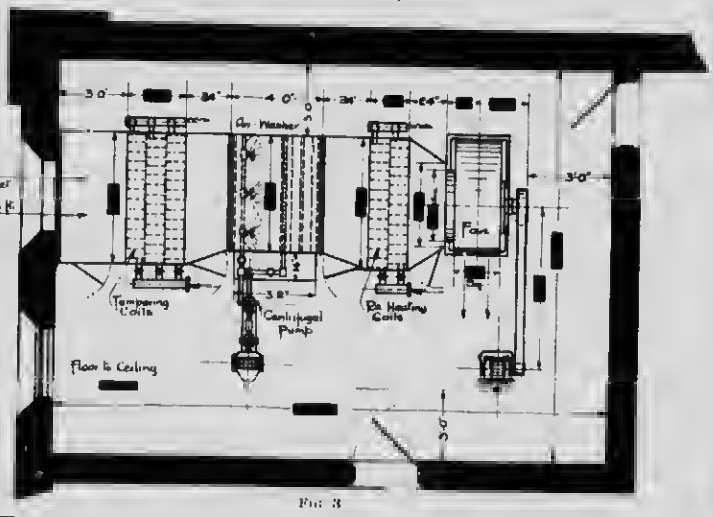


FIG. 3

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SIZE OF ROOM FOR APPARATUS.

For apparatus arranged as shown and including the 3 foot space, and also for apparatus with fan direct driven, the room sizes given in Table No. 3 will be found suitable in most cases.

TABLE No. 3

Cubic Feet of Air per Minute.	Apparatus with Fan Belt Driven.			Apparatus with Fan Direct Driven		
	Length Ft.	Width Ft.	Height Ft.	Length Ft.	Width Ft.	Height Ft.
Up to 10,000	24	17	9	25	13	9
10,000 to 15,000	26	18	10	26	14	10
15,000 to 20,000	27	19	10	28	15	10
20,000 to 25,000	28	19	11	29	16	11
25,000 to 30,000	29	20	11	30	17	11
30,000 to 40,000	30	21	12	31	18	12

For apparatus having the inlet side of the fan at right angles to the face of the re-heater coils, add 1 foot to the width of the rooms given in the table for apparatus with fan direct driven.

The above measurements are for standard installations, i.e., arranged to give highest efficiency, and in cases where the conditions make it necessary to change the design, the sizes of the rooms may vary. Where the installation does not include an air washer, approximately 8 feet may be cut off the length of the room.

FAN HEATING INSTALLATIONS

TABLE No. 4.

TABLE OF COEFFICIENTS OF TRANSMISSION, PER DEGREE DIFFERENCE OF TEMPERATURE, IN B.T.U. PER SQ. FT. OF SURFACE PER HOUR

Surface.	Thickness	Co-efficient
Solid Brick Wall	9"	46
" " "	13"	32
" " "	17"	26
" " "	22"	23
" " "	26"	20
" " "	30"	174
Solid Stone Wall	12"	45
" " "	16"	39
" " "	20"	35
" " "	24"	32
" " "	28"	29
" " "	32"	26
" " "	36"	24
Frame Wall		22
Corrugated Iron Wall		84

Surface.		Co-efficient
Floors:	Wood	07
	Fireproof	124
	Plank on Earth	16
	Plank on Concrete	20
	Earth Floor	23
	Cement and Concrete on Cinders	30
Roof:	Wood under Slate	30
	Wood under Iron	17
	Monitor	150
	Tar - Felt and Gravel	110
Ceilings:	Wood	80
	Fireproof	145
Windows:	Single	1 00
	Double	50
Skylights:	Single	1 11
	Double	62
Doors		1 00

On factory heating, losses from transmission of heat can be calculated with the aid of Table No. 4. Experience shows that the required air change varies anywhere from 30 minutes to 15 minutes, according to the type and size of building and the material of which it is constructed. Space here will not permit us to give a detailed explanation of the calculations for fan heating jobs. We, therefore, again offer to make plans and specifications for any who have not had experience in this class of work.

IMPORTANT POINTS IN FAN INSTALLATION.

If fan is driven by electric motor, the motor should have a surplus power of 25% as the characteristic performance of a fan is such that the fan will overload if the resistance against which it is working is less than that calculated on.

Do not allow a fan equipment to be crowded into a small room and be erected in a haphazard manner. It is always an important installation, and you expect good results from it. Put it in, therefore, as you would an engine or steam turbine in a power-house.

SELECTION OF HEATER.

To determine the size of heater required, after having decided on the size and capacity of the fan, reference to Table No. 5 will give the number of feet of inch pipe in a fan coil necessary to heat 1,000 cubic feet of air per minute to any desired temperature. This table gives from zero to various temperatures, and also gives the raise in temperature obtainable from a starting point of 30°, which is used when the air is to be re-circulated in the heating system. In factory heating systems the air is, as a rule, re-circulated except in special installations. In all public building work it is recommended that fresh air be taken from the outside. In this case the air will be figured as entering at zero. If the building is situated in an extremely cold locality, such as 30° below zero, then the amount of pipe can be determined from Table No. 5, with the exception that, instead of the final temperature being as given, it will be 30° lower; that is, instead of raising from zero to, say, 90°, it will raise from 30° below zero to 60°. This, of course, is approximate only, but will be near enough for preliminary calculation. In Table No. 6 are given curves, showing the temperature of air obtained when passing through the coils of various depths at different velocities. In Table No. 7 are given the temperatures obtained when the air is passed through coils of various depths, the coils being furnished with steam at different pressures. From these last two tables can be determined the depth of heaters or number of sections required to obtain correct results.

TABLE No. 5.

HEATING SURFACE IN LINEAL FEET CAPACITY. TO HEAT 1000 CUBIC FEET OF AIR AT VELOCITY OF 1500 FEET PER MINUTE THROUGH COILS.

Steam Pressure, 2 lbs.				Steam Pressure, 70 lbs.			
Fresh Air		Recirculated Air		Fresh Air		Recirculated Air	
Temp. Raised	Lineal Feet	Temp. Raised	Lineal Feet	Temp. Raised	Lineal Feet	Temp. Raised	Lineal Feet
0- 60	101	30- 60	55	0- 60	70	30- 60	36
0- 65	109	30- 65	64	0- 65	75	30- 65	42
0- 70	117	30- 70	73	0- 70	81	30- 70	48
0- 75	126	30- 75	82	0- 75	87	30- 75	54
0- 80	134	30- 80	91	0- 80	93	30- 80	60
0- 85	142	30- 85	100	0- 85	98	30- 85	66
0- 90	151	30- 90	109	0- 90	104	30- 90	72
0-100	168	30-100	128	0-100	116	30-100	84
0-110	185	30-110	145	0-110	127	30-110	96
0-120	201	30-120	165	0-120	139	30-120	108
0-140	237	30-140	174	0-140	162	30-140	131
0-160	270	30-160	204	0-160	185	30-160	155
0-180	303	30-180	237	0-180	209	30-180	179
0-200	336	30-200	267	0-200	232	30-200	203
0-250	420	30-250	345	0-250	289	30-250	260

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TABLE NO. 6

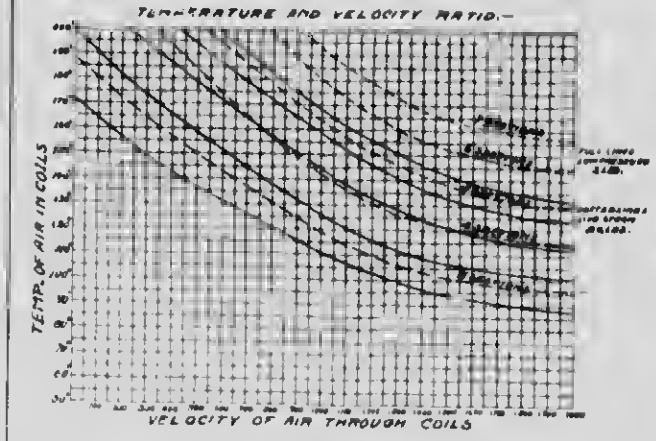
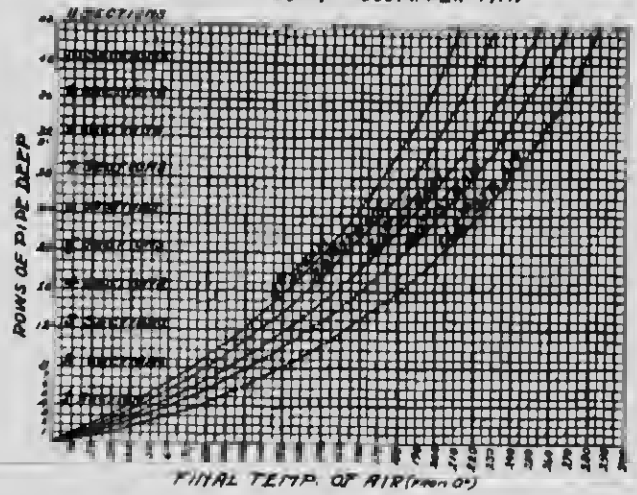


TABLE NO. 7



TEMPERING COIL.

Where a fan and heater is used for ventilation only, in connection with a system of direct radiation, the heater coil is furnished only to raise the air from the outside temperature to a final temperature of from 70° to 80°. It is customary to have the coils sufficiently large to heat the air to about 10° higher temperature than that at which it will be delivered into the rooms. This 10° is allowed for a transmission loss in passing through ducts and flues.

FOR FACTORIES.

For factory heating systems, or in such systems where the entering air, besides ventilating the building, is used to heat it as well, the final temperature of the air is generally about 130° or 140° at the fan outlet, and in calculating the pipe, if it is figured at a final temperature of 140°, it will be sufficient in most cases. Where very large volumes of air are delivered into rooms, a lower temperature, such as 120°, is sufficient, as the excess of air delivered more than makes up for the fall off in temperature.

DEPTH OF HEATERS.

Heaters are usually made from 20 to 24 pipes deep, or, in other words, from 5 to 6 sections deep, each section being 4 pipes deep. A heater of standard construction is about 50% "free area," that is, the "free area" between the pipes is about 50% of the "over-all" area of a section.

VELOCITY THROUGH HEATERS.

For public buildings the air generally passes through the coils at a velocity of from 800 to 1000 feet per minute, and for factories the velocity can be much higher, and it is generally from 1200 to 1600 feet per minute. In public building work a tempering coil is usually furnished to raise the outside air to a temperature of 60° or 70°. The air then passes through the fan and from the fan is delivered to the ducts or flues. If the air is to be used for heating, or is desired at a higher temperature than is accomplished by the use of the tempering coil, a re-heater is used of from 3 to 4 sections to raise the temperature from 70° to any desired temperature. The tempering coil is usually from 4 to 12 pipes deep or from 1 to 3 sections. A re-heater coil is generally from 8 to 16 pipes deep or from 2 to 4 sections.

TYPE OF HEATERS.

For public building work the "draw-through" type heater is used only where space conditions make it necessary. It is customary to use the "blow-through" type; that is, the fan discharges its air through the heater, and from the heater the air is conducted to the several rooms by the ducts or flues. In factory work the "draw through" heater is used almost entirely on account of its occupying much less space. This means that the fan will exhaust its air or draw it through the heater, and the fan discharge will be connected directly to a system of duct distributing pipes.

SIZE OF HEATERS.

Table No. 8 gives the sizes of heaters in lineal feet of 1-inch pipe, and also gives the number of square feet of heating surface contained in each one of these heaters. We give a table showing the heaters as specially constructed in 2, 3, 4, 5, 6, or 7 sections. The heights, lengths, or widths of these sections or space required is also given, together with the "free area" through the coils. The length of the heater is the dimension parallel to that in which the air flows, and besides this length a space of at least 18 inches must be furnished to insure space for the free distribution of the air over the entire surface of the heater. If any larger heaters than this list are required, for instance, 10,000 ft. heater, we would advise the use of two 5,000 ft. heaters set back to back. This is the customary method, and these heaters can be arranged in 2, 3, or 4 group heaters, each group being as per the list as shown in Table No. 8.

TABLE NO. 8.

GENERAL DIMENSIONS OF HEATERS.

No. of Lineal Feet of 1 in. Pipe in Heater	No. of Square Feet of Heating Surface in Heater	FLOOR SPACE OCCUPIED—HEIGHT—AND FREE AREA THROUGH HEATERS. ALL DIMENSIONS IN FEET.																					
		8 Pipes Deep or 2 Sections				12 Pipes Deep or 3 Sections				16 Pipes Deep or 4 Sections				20 Pipes Deep or 5 Sections				24 Pipes Deep or 6 Sections				28 Pipes Deep or 7 Sections			
		Width	Length	Height	Free Area in Square Feet	Width	Length	Height	Free Area in Square Feet	Width	Length	Height	Free Area in Square Feet	Width	Length	Height	Free Area in Square Feet	Width	Length	Height	Free Area in Square Feet	Width	Length	Height	Free Area in Square Feet
500	166.6	2.84	1.5	5.82	8.3	2.84	2.2	4.14	5.0														
750	250.0	2.84	1.5	6.51	9.25	2.84	2.2	6.02	8.6	2.84	3.0	4.65	6.6										
1000	333.3	4.43	1.5	7.01	15.6	4.03	2.2	5.33	10.8	5.64	3.0	4.63	8.35	3.17	3.7	4.14	6.6	2.84	4.5	4.14	5.9		
1500	500.0	5.22	1.5	8.2	21.2	4.43	2.2	7.01	15.6	4.03	3.0	5.62	11.4	3.64	3.7	5.43	9.8	2.84	4.5	6.03	8.6	3.17	5.2
2000	666.6	6.46	1.5	9.07	28.3	5.62	2.2	7.11	20.0	4.82	3.0	6.42	15.5	4.43	3.7	5.72	11.7	4.03	4.5	5.33	10.8	3.64	5.2
2500	833.3	7.22	1.5	9.88	36.0	6.05	2.2	7.9	25.0	5.22	3.0	7.21	19.1	4.43	3.7	7.01	15.6	4.43	4.5	5.82	12.9	4.03	5.2
3000	1000.0	7.93	1.5	10.27	50.5	6.46	2.2	9.09	28.3	5.22	3.0	8.2	21.2	5.22	3.7	6.71	17.6	4.43	4.5	7.01	15.6	4.43	5.2
3500	1166.6					7.62	2.2	8.49	32.3	6.46	3.0	7.7	24.8	5.62	3.7	7.21	20.3	5.22	4.5	6.51	17.2	4.43	5.2
4000	1333.3					7.93	2.2	9.48	37.5	6.46	3.0	9.00	28.3	6.05	3.7	7.6	23.0	5.62	4.5	7.11	20.0	5.22	5.2
4500	1500.0					8.41	2.2	9.78	41.2	7.22	3.0	8.67	31.4	6.46	3.7	8.0	25.8	5.22	4.5	8.2	21.2	5.22	5.2
5000	1666.6									7.22	3.0	9.25	35.7	6.46	3.7	9.09	28.3	6.05	4.5	7.9	23.0	5.22	5.2
5500	1833.3									8.41	3.0	9.29	38.2	7.22	3.7	8.59	31.0	6.46	4.5	8.00	25.8	6.05	5.2
6000	2000.2													7.02	3.7	8.79	33.5	6.46	4.5	9.09	28.3	6.46	5.2
6500	2166.6													7.93	3.7	8.09	35.5	7.22	4.5	8.39	30.3	6.82	5.2
7000	2333.3													7.93	3.7	9.68	38.0	7.22	4.5	8.99	32.5	6.46	5.2
7500	2500.0													7.93	3.7	10.27	41.6	7.22	4.5	9.88	35.7	7.22	5.2

No. of Lineal Feet of 1 in. Pipe in Heater	No. of Square Feet of Heating Surface in Heater	28 Pipes Deep or 7 Sections			
		Width	Length	Height	Free Area in Square Feet
500	166.6				
750	250.0				
1000	333.3				
1500	500.0				
2000	666.6	3.17	5.2	11.24	6.7
2500	833.3	3.64	5.2	5.13	9.35
3000	1000.0	4.03	5.2	5.62	11.4
3500	1166.6	4.43	5.2	6.02	13.4
4000	1333.3	4.43	5.2	7.01	15.6
4500	1500.0	5.22	5.2	6.42	16.8
5000	1666.6	5.22	5.2	7.11	18.7
5500	1833.3	5.22	5.2	7.80	20.5
6000	2000.2	6.05	5.2	7.5	22.8
6500	2166.6	6.46	5.2	7.6	24.6
7000	2333.3	6.82	5.2	7.70	26.4
7500	2500.0	6.46	5.2	11.00	28.3
		7.22	5.2	8.50	30.7

THE CANADIAN RECTOR GAS HEATING CO., LIMITED

320-322 Lister Chambers,
HAMILTON, ONT.

Toronto Office: 26 Adelaide Street West

PRODUCTS. The RECTOR SYSTEM of VACUUM AUTOMATIC GAS HEATING

DESCRIPTION AND ADVANTAGES. The Rector System burns ordinary gas, such as is now used to light homes and for cooking purposes in a gas range. Gas is infinitely more convenient than coal, oil or any other kind of fuel.

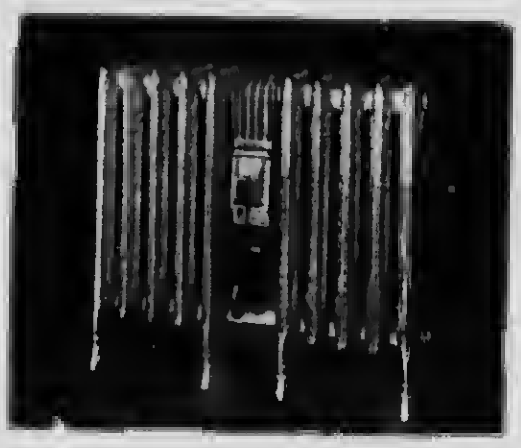
The Rector System removes every objection heretofore connected with gas heating the disagreeable odour, the unhealthful fumes and moisture, and the expense.

The Rector System leaves all the heat from the gas in the room, yet takes all the "smell" from the gas out of the room.

The Rector System gives exactly the amount of heat wanted when wanted; exactly the amount of heat desired in each individual room; an even temperature under perfect control, automatically adjusting itself to meet the changes of the weather a large saving in gas fuel bills.

The Rector System is absolutely reliable, giving the temperature called for not within five degrees or two degrees, but exactly never varying one-half a degree above or below what the thermostat is set for.

The Rector System can be started or stopped at a moment's notice by merely pushing a button, the same as for electric lights, or controlled by a clock, which starts or stops it at any set time.



The Only Heating System that Runs Itself

The Rector System is perfectly automatic the gas does not have to be turned on or off. The supply of gas does not need to be regulated for the different temperatures desired. The thermostat takes care of everything, allowing only the exact amount of gas to be burned to give the heat desired.

The Rector System is sanitary and healthful. There is no odour, dust or dirt; no overheated or underheated room. There is constant and continuous ventilation. All this has resulted in better general health in homes where installed.

The Rector System operates on the lowest gas pressure, even in the absence of pressure, drawing its own gas from the main.

ADAPTABILITY. The Rector System has been used in all sorts of weather and all sorts of outside temperatures, below zero and above, in small homes, in large residences, in public halls, in school buildings, in churches, in public libraries, in large apartment houses, in banks, and in every case and under all circumstances the verdict is the same a service so perfect, so ideal, as to meet every possible heating requirement.

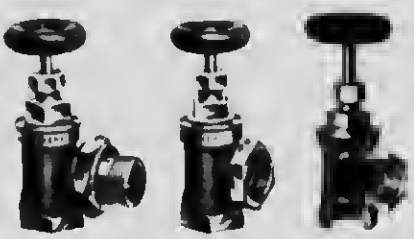
INFORMATION. Catalogues and full information furnished upon request.

THE KERR ENGINE COMPANY, LIMITED

HEAD OFFICE AND WORKS
WALKERVILLE, - - ONTARIO.

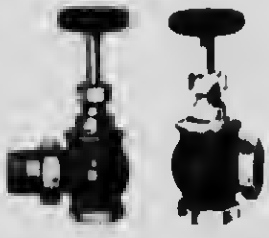
PRODUCTS. We manufacture Composition Disc Globe and Angle Valves (Brass), Steam and Hot Water Radiator Valves, Brass Gate Valves, PACKLESS RADIATOR VALVES, Iron Body Gate and Swing Check Valves, Indicator Post Gate Valves, Fire Hydrants (Gate and Compression), Valve Boxes, Water Cranes, etc.

KERR QUICK OPENING HOT WATER RADIATOR VALVES



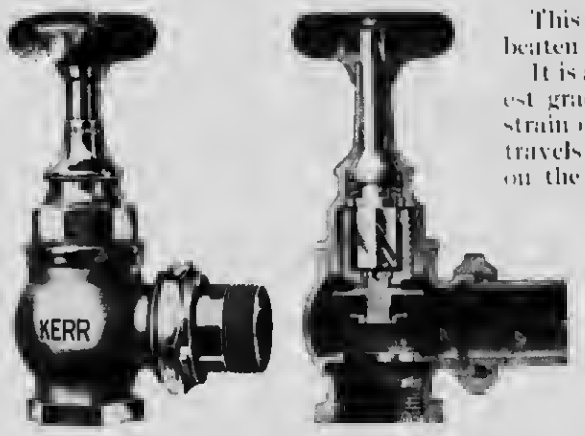
These are the hot water valves which have made this type of Radiator Valve so popular. The plugs are so made as to prevent sticking. Metal throughout is of good quality and workmanship is of the very first order. Handsome design, good material and accurate workmanship combine to make them "the best and most serviceable valve of the kind procurable. Every valve tested.

BRASS DISC AND COMPOSITION DISC STEAM RADIATOR VALVES.



This is a good weight valve for domestic heating, made of good red metal and beautifully machined and plated. We stand back of our radiator and other valves and guarantee them to be free from bad castings, poor material or workmanship. Any valves found defective we gladly replace. These valves are so constructed that the bonnets will not freeze and the seat is so situated as to drain the valve completely through Radiator when the valve is closed.

THE KERR PACKLESS RADIATOR VALVE.



This is a decided departure from the well beaten path of so-called "Packless" valves. It is an all-metal valve, made of the highest grade material. There is no thrust or strain on the valve stem, as the disc holder travels on a thread in the bonnet instead of on the stem, the stem acting as a key to operate the travelling disc holder. The stem is made of special metal and has a ground joint held in place by heavy Phosphor Bronze spring, as shown in cut. This is a reliable packless valve and we will be pleased to forward circular matter and give further information concerning it on application. Give these valves a trial on the next small job you have and satisfy yourself as to their merits. We are certain of the results.

KERR BRASS AND IRON GATE VALVES, SCREWED, FLANGED AND HUBBED ENDS. STATIONARY STEM, OR OUTSIDE SCREW AND YOKE TYPES. SOLID WEDGE.

We have been manufacturing this line of valves for upwards of thirty years, and the high reputation gained for them is well known from Coast to Coast. These valves are of the most modern design, and are strong, well-made goods. Our Outside Screw and Yoke Valves are fitted with bronze bushed glands and stuffing boxes as required by the Fire Underwriters.

We expect in the next issue of "Specification Data" to be showing under "Fire Protection" our new and approved line of Valves, Indicator Posts, Check Valves and Hydrants.

THE CANADIAN FAIRBANKS-MORSE CO., LIMITED

444 St. James Street,

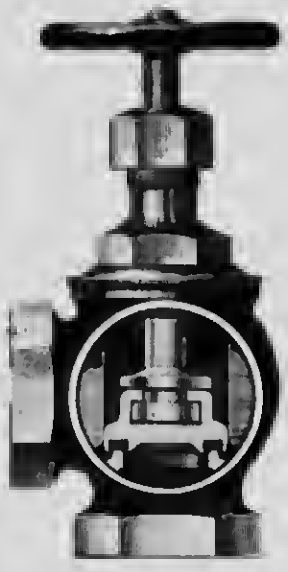
MONTREAL.

BRANCHES:
Ottawa, Toronto and St. John, N.B.

BRANCHES
Winnipeg, Calgary, Saskatoon, Victoria and Vancouver

PRODUCTS. All Supplies for Mills, Factories, Power Houses, Railways, Mines, and Contractors

FAIRBANKS



RENEWABLE DISC

VALVES

Use a Fairbanks Renewable Disc Angle Valve on Radiators and in Corners, and save an elbow and nipple.

Use a Fairbanks Renewable Disc Globe Valve for throttling purposes, as on Engines, Pumps, Hoisting Engines, etc.

Use a Fairbanks Renewable Seat Gate Valve, with Retaining Rings, the only Gate Valve that can be renewed on a line of pipe. These valves permit a free flow of steam or liquid.

Use a Fairbanks Swing Check Valve with Rotative Disc. They work freely and never stick. Used on boiler feed, and all connections to boiler below water line, except blowoff.

Use a P. & C. Asbestos Packed Cock for boiler blowoff. The best Blowoff Cock made.

Fairbanks-Morse Duplex Steam Pump for boiler, feed and other purposes

Advantages of the Renewable Disc

It is much quicker and easier to simply unscrew the valve bonnet and slip a new disc on the spindle than to go to the time and trouble of regrinding the seat and disc. Regrinding requires considerable skill and experience, and takes a long time, which cannot always be spared.

With the disc fitting loosely on the spindle, it is enabled to always come to an even bearing on the seat, thus compensating for any wear, making the valve tight at all times. The disc is a turned brass casting in which is spun a composition ring as shown, thus doing away with the necessity of pins, washers, nuts, etc.

FAIRBANKS RENEWABLE DISC VALVES

are well and simply made, and have many excellent features. They are tight and remain tight under the most severe service. The valves are heavy and doubly strong owing to correct distribution of metal. Every valve that we sell for 125 lbs. working pressure has an individual test up to 300 lbs. hydraulic pressure. These points all count after the valve has been in service, and mean the difference between a common, leaky, wasteful valve, and a Fairbanks Economical Valve.

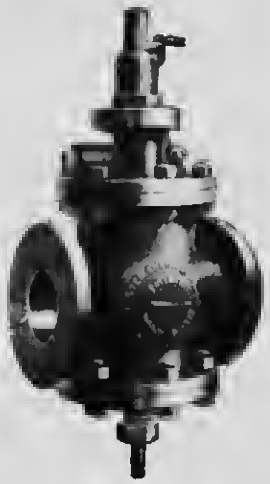
Globe, Angle, Gate, and Check Valves all sizes for every requirement.

FOSTER PRESSURE-REDUCING VALVES.

These valves will deliver steam steadily at any reduced pressure that may be desired. They are especially valuable for use on heating systems, induced draft fans, etc., and provide a safe, reliable way to keep excessive pressure out of any piece of apparatus.

Class Q Regulator is used where delivery pressure does not exceed 15 lbs., Class G on any delivery pressure above 15 lbs.

Booklet No. 11 R tells all about these and many other Foster Specialties.



Class G Foster Regulator.

THE GOLDIE & McCULLOCH CO., LIMITED

GALT, ONTARIO, CANADA.

WESTERN BRANCH:
248 McDermott Ave.,
WINNIPEG, MAN.

TORONTO OFFICE:
1101-2 Traders Bank Building.

QUEBEC AGENTS:
ROSS & GREBS, 412 St. James St.,
MONTREAL, QUE.

B.C. AGENTS: ROBT. HAMILTON & CO., VANCOUVER, B.C.

POWER EQUIPMENT, COMPLETE OR IN PART.
HEATING BOILERS.

MATERIAL. The material used in the construction of our Boilers is the best quality of flange steel of standard make. The tubes are soft steel. The rivets are mild steel and the stays are the Huston solid pressed steel type.

FLANGING. The head sheets are of the best quality of flange steel, and are formed in a hydraulic flanging machine with curves of large radii. Only one heat is taken on each head in turning the flange, thus relieving the head sheet from all strains likely to occur when flanging is done by hand.

RIVETTING. The riveting is principally done by a powerful hydraulic rivetter by which the plates are brought in such close contact that the strain on the rivets is greatly reduced.

CAULKING. The seams are caulked with a pneumatic caulking machine, a blunt tool being used to prevent injury to lower plate. The edges of all plates are planed before being rolled.

STAYING. Special attention is given to bracing and staying. All flat surfaces are well and properly stayed with solid steel stays.

BRACKETS. Boilers are supported by two heavy brackets on each side.

FIXTURES AND FITTINGS. With each boiler we include the following fixtures and fittings: Cast iron boiler front of new and neat design, head plate, centre abutment to support the brick arches over the furnace doors, grate bars and supports, rear door and frame, cast angle and tee bars to support brick work at back end of boiler, uptake with damper over boiler front, bracket plates and rollers, anchor bolts for front and rear door frame, safety valve water column with gauge cocks, glass water gauge and steam gauge.

We also furnish with each boiler, when required, a blue print of brick work, with instructions as to material required.

TESTING. Upon completion all boilers are tested to a hydrostatic pressure of 50 per cent. more than the working pressure, and inspected.

DIMENSIONS OF STEAM HEATING BOILERS WITHOUT DOMES.

Tested for 100 lbs. Working Pressure. Canadian Standard.

Diameter Inches	Length Feet	Thickness of Shell	Thickness of Heads	Tubes No	Tubes Diameter	Heating Surface	Commercial H.P. of 15 square feet	Shipping Weight about	Diameter of Stack	Will carry of H. of Radiation
24	5			22	2	197	4½	10201	13	3180
24	6			22	2	80	5½	18001	13	4401
30	7			22	3	1501	10	26001	13	8001
30	8			22	3	178	12	28001	13	6601
30	10			22	3	222	14	33001	13	10201
36	8			32	3	250	17	40501	16	13501
36	10			32	3	313	21	45501	16	16801
36	12			32	3	374	25	50501	16	20001
40	8			38	3	295	20	46501	18	16001
40	10			38	3	389	24	52001	18	19201
40	12			38	3	441	29	57501	18	23201
42	10			40	3	389	26	57001	18	20801
42	12			40	3	464	31	63001	18	24801
44	10			44	3	424	28	59501	22	28401
44	12			44	3	507	34	67001	22	27201
48	10			52	3	495	33	74001	22	26401
48	12			52	3	594	40	81501	22	31201
48	14			52	3	686	46	89501	22	36801
52	12			58	3	658	44	91001	24	35201
52	14			58	3	764	51	100001	24	40801
54	12			63	3	720	48	96001	26	38401
54	14			63	3	836	56	106501	26	44801
60	12			78	3	865	57	114001	26	45601
60	14			78	3	1005	67	124001	26	53601

CANADIAN ALLIS-CHALMERS, LIMITED

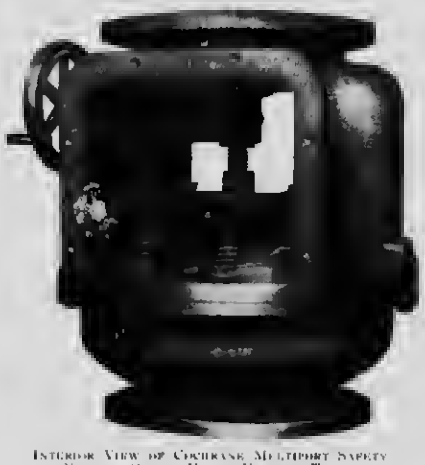
HEAD OFFICE: TORONTO.

DISTRICT SALES OFFICES:

MONTREAL	PORCUPINE	SASKATOON	VANCOUVER
HALIFAX	FORT WILLIAM	CALGARY	VICTORIA
COBALT	WINNIPEG	EDMONTON	PRINCE RUPERT
OTTAWA	REGINA	NELSON	

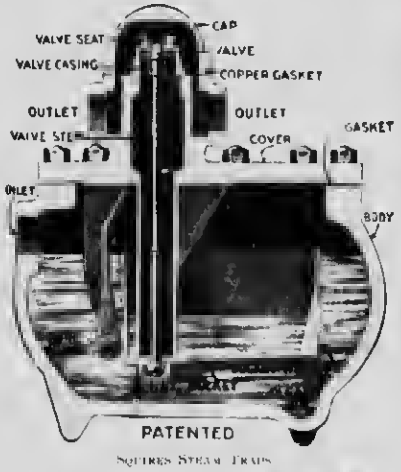
POWER PLANT EQUIPMENT.

PRODUCTS. Manufacturers of AIR COMPRESSORS, AVERY AUTOMATIC SCALES, BOILERS, CEMENT MAKING MACHINERY, CONCRETE MIXERS, FLOUR MILL MACHINERY, GAS ENGINES, HOISTING ENGINES, HYDRAULIC MACHINERY, LIDGERWOOD ENGINES AND CABLES, LOCOMOTIVES, MINING AND CRUSHING MACHINERY, ORNAMENTAL METAL WORK, ROCK CRUSHERS, ROCK DRILLS, SAW MILL MACHINERY, STEAM PUMPS, STEAM SPECIALTIES, STEAM SHOVELS, STEAM TURBINES, STRUCTURAL STEEL, TRANSMISSION MACHINERY, TURBINE PUMPS, WATER PIPE, WATER WHEELS.



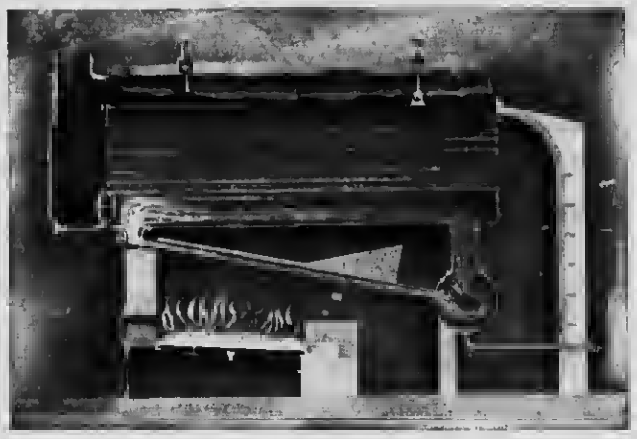
INTERIOR VIEW OF COCHRANE MULTIPORT SAFETY EXHAUST OUTLET VALVE (VERTICAL TYPE)

For the latest ideas on back-pressure valves, also information on the effect of back pressure on steam consumption of engines, send for our booklet, "The Evolution of the Cochrane Multiport," No. 15-V.



SQUIRES STEAM TRAPS

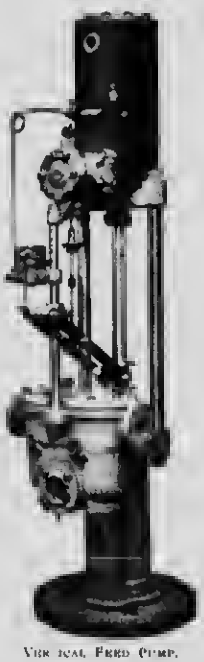
The merits of the Squires Steam Traps have repeatedly been demonstrated in marine service, high-pressure power plants, low-pressure heating systems, on laundry machinery, steam separators, vulcanizers in rubber plants, dry kilns, drying rolls of paper machines, and other places where steam traps are required.



SECTION OF BARROW COMBINATION PIRE AND WATER TUBE BOILER.

The drum at the rear of the Barrow Boiler will collect sediment, which can be blown off at the engineer's convenience. There are no hand holes or plugs in the fire.

We manufacture centrifugal and reciprocating pumps for boiler feed, fire, waterworks and other purposes. The vertical pump here shown is suitable for 200 lb. pressure.



VERTICAL FEED PUMP.

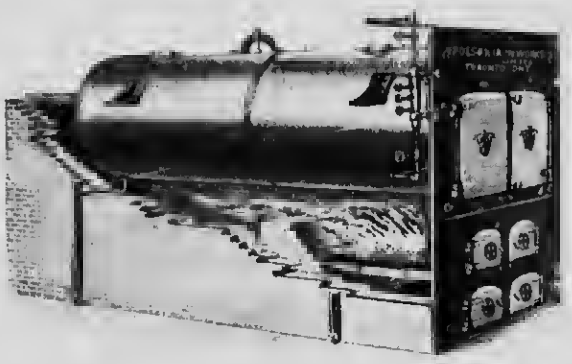
POLSON IRON WORKS, LIMITED

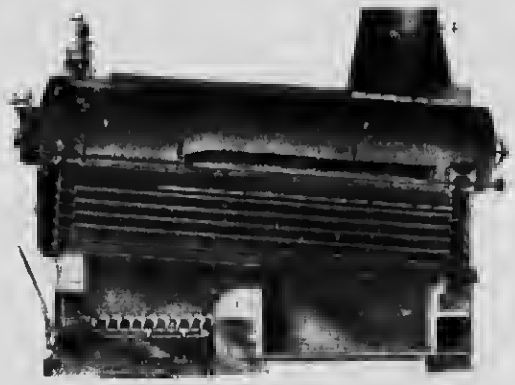
OFFICE AND WORKS, ESPLANADE EAST.

TORONTO, ONT.

PRODUCTS.

We are Engineers and Builders of HYDRAULIC AND DIPPER DREDGES, STEEL STEAM VESSELS, TUGS AND YACHTS, MARINE ENGINES AND BOILERS for every service, including "HEINE" WATER TUBE BOILERS, the "BROWN" AUTOMATIC ENGINE, VERTICAL AND HOISTING ENGINES, and various kinds of Special Machinery from designs of Engineers and Architects.





All our Boilers are made throughout of Open-Hearth, Flange-Steel Plate, having a tensile strength of 60,000 pounds per square inch of section, and elastic limit of over 32,000 pounds, an elongation of over 20 per cent., and a reduction of area of 45 to 50 per cent.; will turn over and close down solid without fracture when cold, or after heating and plunging in cold water, and will not blister.

These boilers are built for a safe working pressure of 100 pounds steam, but we make them for an increased pressure at a slight additional cost.

Our "Standard" Boilers are made with patent dry pipes, so constructed as to positively prevent water from passing into the steam pipe, and are guaranteed to furnish much dryer steam than boilers having domes. When so desired we will furnish Boilers with domes.

Boilers up to 48 inches diameter have only one fire and one ash pit door, and all sizes are provided with manhole in shell and hand holes in front and back heads, unless otherwise ordered.

The "HEINE" SAFETY BOILER.—We claim that the "Heine" Safety Boiler stands at the very head and front in the good qualities essential to complete and satisfactory performance. It is not only so constructed that it will best absorb and transmit heat, but it is so arranged that the heat will best reach it—hence economy and capacity. Safety at high pressures is guaranteed by the most careful selection and testing of materials, all final tests being carried out by the Bureau of Inspection and Tests.

All of our "Heine" Boilers are made for not less than a working pressure of 160 pounds strain, and may be made for as high as 300 pounds.

There are a number of special features incorporated in the "Heine" Boilers which serve to produce steam with the lowest percentage of moisture, and no matter how hard the boiler is forced, the water never enters the steam pipe, and, moreover, precipitation and discharge of scale and mud is effectively assured by the use of the "Heine" Mud Drum.

A big plant using many hundreds of H.P. of steam energy does not choose its boilers in a haphazard, hit-or-miss kind of way. It lays on expert test and judgment, and when it comes to a severe test, at once the most economical and most efficient Boiler is the "Heine." We ask a fair and critical examination of the "Heine" Boiler.

HEATING AND VENTILATING.

We are Canadian Agents for The B. F. Sturtevant Company, of Hyde Park, Mass.; designers and builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus, Fans, Blowers, Exhausters, Electric Motors and Turbine Generating Sets, Fuel Economizers, etc. Round House Heating and Ventilating a specialty.

CORRESPONDENCE INVITED.

We invite correspondence from Engineers and Architects, stating their requirements, which will have the prompt attention of our engineers and experts.

For capacities, sizes and full detail information, see next page.

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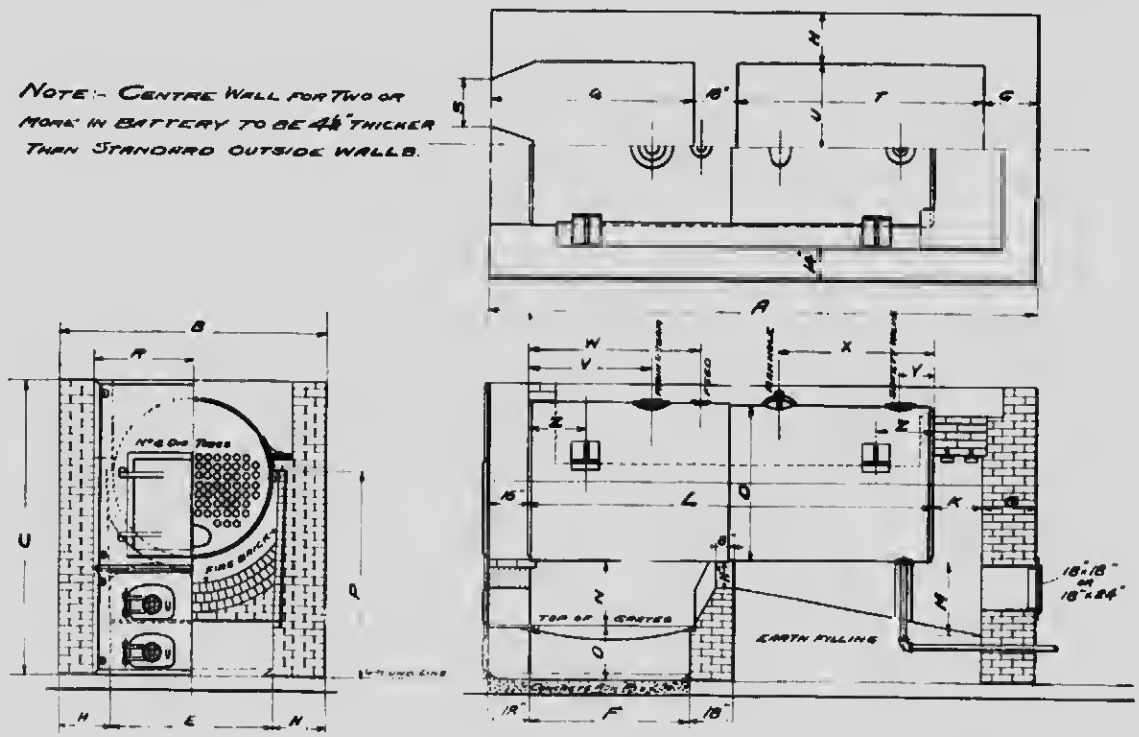


STANDARD SETTINGS OF H. R. T. BOILERS.

D	L	Tubes		Horse Power Rating 10 Sq. Ft. 1 H.P.	Horse Power Rating 12 Sq. Ft. 1 H.P.	Horse Power Rating 15 Sq. Ft. 1 H.P.	Heating Surface.	A	B	C	E	F	G	H	K	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Number Brick For Setting. Common.	Number Brick For Setting. Fire.
Dia.	Length.	No.	Dia.					Brick Work. Length.	Brick Work. Width.	Overall. Height.	Grate. Width	Grate. Length	Walls. Back.	Walls. Side.																		
Single Fire Door 30"	10'	22	3"	22	18	15	220	14' 4"	5' 6"	6' 0"	30"	36"	18"	18"	18"	21"	20"	17"	4' 7"	4' 6"	1' 9"	24"	6' 10"	1' 3"	.....	.....	.....	.....	.....	1' 6"	5,500	500
36"	10'	32	3"	31	26	20	310	14' 4"	6' 0"	6' 1½"	36"	36"	18"	18"	18"	24"	19½"	16½"	4' 9"	4' 6"	1' 11"	24"	6' 10"	1' 6"	3' 0"	4' 3"	3' 6"	1' 3"	1' 6"	6,300	600
	12'	32	3"	37	30	25	370	16' 4"	6' 0"	6' 1½"	30"	36"	18"	18"	18"	24"	19½"	16½"	4' 9"	4' 6"	1	11" 24"	8' 10"	1' 6"	3' 9"	5' 6"	4' 6"	1' 4"	2' 0"	7,000	650
42"	10'	40	3"	39	33	25	390	14' 4"	6' 6"	7' 1"	42"	36"	18"	18"	18"	24"	21"	21"	4' 9"	4' 6"	2'	11½ 24"	6' 10"	1'	9" 3' 0"	1' 3"	3' 6"	1' 3"	1' 6"	8,000	700
	12'	40	3"	46	38	30	460	16' 4"	6' 6"	7' 1"	42"	42"	18"	18"	18"	24"	21"	21"	4' 9"	5' 0"	2'	11" 24"	8' 4"	1'	9" 3' 0"	5' 6"	4' 6"	1' 4"	2' 0"	9,000	700
44"	12'	42	3"	47	40	30	474	16' 4"	6' 6½"	7' 1"	44"	48"	18"	18"	18"	24"	21"	21"	5' 7"	5' 6"	2'	11" 24"	7' 10"	1'	10" 3' 9"	5' 6"	4' 6"	1' 4"	1' 6"	10,000	750
	12'	52	3"	60	50	40	590	16' 8½"	7' 0"	7' 6"	48"	42"	22½"	22½"	18"	24"	25"	20"	6' 0"	5' 0"	2'	6½" 24"	8'	4"	2' 0"	3' 9"	5' 6"	4' 6"	1' 4"	1' 6"	11,000	800
	14'	52	3"	68	56	45	680	18' 8½"	7' 9"	7' 0"	48"	48"	22½"	22½"	18"	24"	25"	20"	6' 0"	5' 6"	2'	6½" 24"	9'	10"	2' 0"	4' 4"	6' 1½"	5' 6"	1' 8"	2' 0"	12,000	800
54"	12'	64	3"	72	60	50	720	16' 8½"	8' 3"	8' 7½"	54"	48"	22½"	22½"	18"	24"	27"	22½"	6' 7½"	5' 6"	2'	7½" 18"	7'	10"	2'	3" 3' 9"	5' 6"	4' 6"	1' 4"	1' 9"	12,000	900
	14'	64	3"	83	69	55	830	18' 8½"	8' 3"	8' 7½"	54"	54"	22½"	22½"	18"	24"	27"	22½"	6' 7½"	6' 0"	2'	7½" 18"	9'	4"	2'	3" 4' 4"	6' 1½"	5' 6"	1' 8"	2' 0"	13,000	900
60"	12'	78	3"	86	72	60	860	16' 10½"	8' 9"	9' 3"	60"	48"	22½"	22½"	20"	27"	27"	22½"	6' 10½"	5' 6"	3'	11" 18"	8'	0"	2'	6" 3' 9"	5' 6"	4' 6"	1' 4"	1' 9"	14,000	950
	14'	78	3"	100	83	65	1000	18' 10½"	8' 9"	9' 3"	60"	54"	22½"	22½"	20"	27"	27"	22½"	6' 10½"	6' 0"	3'	11" 18"	9'	6"	2'	6" 4' 4"	6' 1½"	5' 6"	1' 8"	2' 0"	15,500	950
	16'	78	3"	114	95	75	1140	20' 10½"	8' 9"	9' 3"	60"	60"	22½"	22½"	20"	27"	27"	22½"	6' 10½"	6' 6"	3'	11" 18"	10'	0"	2'	6" 5' 0"	7' 0"	6' 6"	2' 0"	2' 6"	17,000	950
	16'	64	3½"	110	90	75	1100	20' 10½"	8' 9"	9' 3"	60"	60"	22½"	22½"	20"	27"	27"	22½"	6' 10½"	6' 6"	3'	11" 18"	10'	0"	2'	6" 5' 0"	7' 0"	6' 6"	2' 0"	2' 6"	17,000	950
66"	14'	106	3"	133	110	90	1330	18' 10½"	9' 3"	10' 2"	60"	66"	22½"	22½"	20"	30"	27"	22½"	7'	1½"	7' 0"	3'	5"	18"	8'	6"	2'	9" 4' 4"	6' 1½"	5' 6"	1' 8"	2' 0"	17 500	1,000
	14'	84	3½"	124	100	85	1240	18' 10½"	9' 3"	10' 2"	66"	66"	22½"	22½"	20"	30"	27"	22½"	7'	1½"	7' 0"	3'	5"	18"	8'	6"	2'	9" 4' 4"	6' 1½"	5' 6"	1' 8"	2' 0"	17,500	1,000
	16'	100	3"	157	130	105	1570	20' 10½"	9' 3"	10' 2"	66"	66"	22½"	22½"	20"	30"	27"	22½"	7'	1½"	7' 0"	3'	5"	18"	10'	6"	2'	9" 5' 0"	7' 0"	6' 6"	2' 0"	2' 6"	18,000	1,000
	16'	84	3½"	141	118	95	1410	20' 10½"	9' 3"	10' 2"	66"	66"	22½"	22½"	20"	30"	27"	22½"	7'	1½"	7' 0"	3'	5"	18"	10'	6"	2'	9" 5' 0"	7' 0"	6' 6"	2' 0"	2' 6"	18,000	1,000
72"	14'	96	3½"	141	118	95	1410	19' 2½"	9' 9"	10' 7½"	72"	60"	22½"	22½"	24"	33"	29"	23"	7'	7"	6' 6"	3'	10½"	18"	9'	4"	3'	0" 4' 4"	6' 1½"	5' 6"	1' 8"	2' 0"	19,000	1,050
	14'	80	4"	135	112	90	1350	19' 2½"	9' 9"	10' 7½"	72"	60"	22½"	22½"	24"	33"	29"	23"	7'	7"	6' 6"	3'	10½"	18"	9'	4"	3'	0" 4' 4"	6' 1½"	5' 6"	1' 8"	2' 0"	19,000	1,050
	16'	96	3½"	161	134	110	1610	21' 2½"	9' 9"	10' 7½"	72"	66"	22½"	22½"	24"	33"	29"	23"	7'	7"	7'	0"	3'	10½"	18"	10'	10"	3'	0" 5' 0"	7' 0"	6' 6"	2' 0"	2' 6"	19,500	1,050
	16'	80	4"	154	128	105	1540	21' 2½"	9' 9"	10' 7½"	72"	66"	22½"	22½"	24"	33"	29"	23"	7'	7"	7'	0"	3'	10½"	18"	10'	10"	3'	0" 5' 0"	7' 0"	6' 6"	2' 0"	2' 6"	19,500	1,050
	18'	96	3½"	181	150	120	1810	23' 2½"	9' 9"	10' 7½"	72"	72"	22½"	22½"	24"	33"	29"	23"	7'	7"	7'	6"	3'	10½"	18"	12'	4"	3'	0" 5' 6"	8' 0"	7' 6"	2' 5"	3' 0"	21,000	1,050
	18'	80	4"	173	144	115	1730	23' 2½"	9' 9"	10' 7½"	72"	72"	22½"	22½"	24"	33"	29"	23"	7'	7"	7'	6"	3'	10½"	18"	12'	4"	3'	0" 5' 6"	8' 0"	7' 6"	2' 5"	3' 0"	21,000	1,050
78"	16'	86	4"	168	137	110	1650	21' 2½"	10' 3"	11' 9"	78"	72"	22½"	22½"	24"	36"	28"	27½"	8'	1½"	7'	6"	4'	3"	18"	10'	4"	3'	3" 5' 0"	7' 0"	6' 6"	2' 0"	2' 6"	22,000	1,100
	18'	86	4"	185	155	125	1850	23' 2½"	10' 3"	11' 9"	78"	72"	22½"	22½"	24"	36"	28"	27½"	8'	1½"	7'	6"	4'	3"	18"	12'	4"	3'	3" 5' 6"	8' 0"	7' 6"	2' 5"	3' 0"	23,000	1,150

THE G. H. TOD CO.

ENGINEERS,

213 MANNING CHAMBERS, TORONTO.

601 UNION BANK BUILDING, WINNIPEG.

BENNIS CHAIN GRATES AND COKING STOKERS

FOR WATERTUBE AND RETURN TUBULAR BOILERS.

Bennis Coking Stokers fitted with compressed air furnaces give greater output per square foot of grate than chain grate stokers, which, where floor space is restricted, is of great importance. These Coking Stokers will easily deal with coals containing a high percentage of ash and clinker.

All Bennis Stokers can be easily hand-fired in cases of emergency, and any of them will burn most satisfactorily and efficiently cheap slack coals with absolutely no smoke.

Specifying Bennis Chain Grates or Bennis Coking Stokers will ensure your getting from your steam plant maximum output and efficiency with minimum maintenance costs.

We also supply and erect.

COMPLETE WATER SOFTENING PLANTS HAND POWER CRANES ELECTRIC CRANES AND CAPSTANS.

BROADBENT HYDRO EXTRACTORS are recognized as the standard machines for up to date Laundries and Textile Mills.

ASHWORTH-PARKER HIGH SPEED ENGINES AND GENERATING SETS. For full particulars we would draw your attention to the opposite page.

SOME SPECIAL FEATURES.

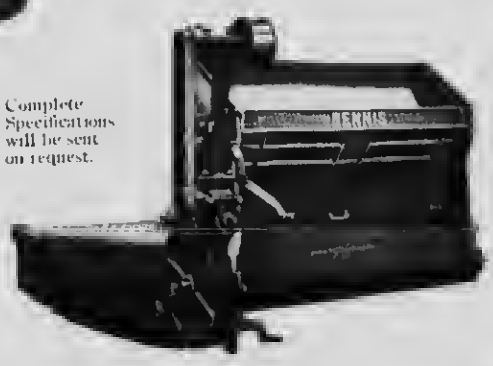
The accompanying illustrations of Bennis Chain Grates show clearly the construction of the serrated links with rounded halved ends. This exclusive feature gives a continuous grate surface across the junction of each pair of links, and a larger amount of air space per square foot of grate than is possible with a straight link, the result being that each part of the fire gets its due proportion of air, as there are no openings through which an excessive quantity of air can gain admission or into which ashes or clinker can fall.

The speed of travel of the grate can be conveniently regulated within wide limits and absolute smoothness of running is always assured, the drive being continuous by means of steel cut gear wheels, arranged with six variations in speed, working in oil in an oil-tight gear case.

The coal is fed over the whole width of the grate, the depth of fire being regulated by an adjustable vertically-lifting fire-door. Thus the stoker can be adjusted to meet the varying demands for steam, the required speed of the grate, and the necessary draught.

The side and back air seals and the arrangement of the sliding door prevent all air leakage, thus ensuring all the air passing through the grate, giving the maximum output per square foot of grate area. The side air seals also prevent the rapid deterioration of furnace side walls experienced with other makes of chain grates.

Complete Specifications will be sent on request.



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THE G. H. TOD CO.

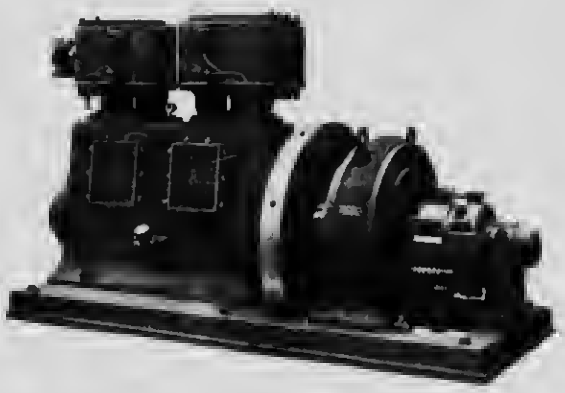
ENGINEERS,

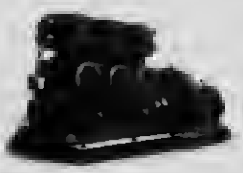
213 Manning Chambers,
TORONTO.

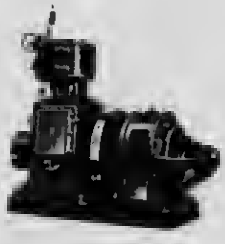
601 Union Bank Building,
WINNIPEG.

ASHWORTH-PARKER ENCLOSED HIGH SPEED ENGINES

FITTED WITH FORCED LUBRICATION THROUGHOUT.







THE SALIENT POINTS which characterize all Ashworth-Parker Engines and which differentiate them from the products of other makers, are the beauty of finish, the extensive use of forgings in the detail work, casting of the cylinders on chills, giving an extremely hard surface with reduced wear and friction, and the finish of many portions of the work by grinding.

PRODUCED IN A WORKS devoted solely to their manufacture, each type, though specially designed for the class of work with which it has to deal, is at the same time, by the use of the most modern machinery and efficient methods, completely interchangeable in similar sizes, and represents the highest class of work in this branch of engine construction.

THE TYPES RANGE, as indicated by the accompanying illustrations, from a single cylinder simple to the three cylinder compound, or triple expansion, and four cylinder triple expansion shown below. They are suitable for all purposes from fan driving, requiring a simple type without governor, to special variable speed engines for paper and printing machines, with complicated governing arrangements, and large engines for the most arduous electrical work, where the governing is of special character.

ASHWORTH-PARKER ENGINES have been running for years in a large number of the most important power plants throughout Canada, as in almost every other civilized country in the world, and here, as elsewhere, have not been equalled for economy, efficiency and entire absence of breakdown.

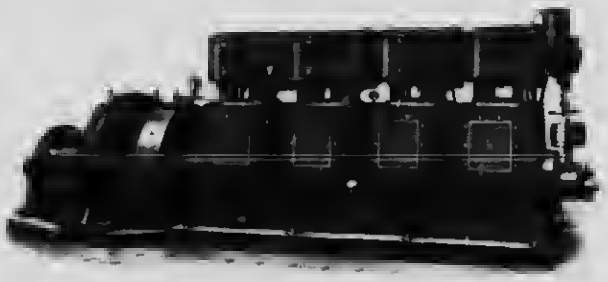
The cylinder design is such as to ensure the attainment of the maximum thermal efficiency possible with compound engines, the waste clearance space and radiating surfaces being reduced to the smallest limits.

If fitted with crankshaft governors, the variation from no load to full load is guaranteed not to exceed 2%, and if the Chorlton-Whitehead governor is fitted, a considerably less variation can be guaranteed.

The valves and cylinders are arranged for the use of superheated steam, but where the steam temperature exceeds 500° F., this fact should be stated at the time of ordering, as special adjustments are required for the successful use of high superheats.

The mechanical details embody many improvements which greatly facilitate the adjustment of the engines and render them particularly easy to operate and maintain in satisfactory running order.

ENGINES FOR ALL PURPOSES AND FULLY EQUIPPED GENERATING SETS SUPPLIED.



FULL SPECIFICATION AND STEAM CONSUMPTION GUARANTEES WILL BE PROVIDED ON REQUEST.

THE JOHN INGLIS CO., LIMITED

ENGINEERS AND BOILERMAKERS,

14 STRACHAN AVENUE,

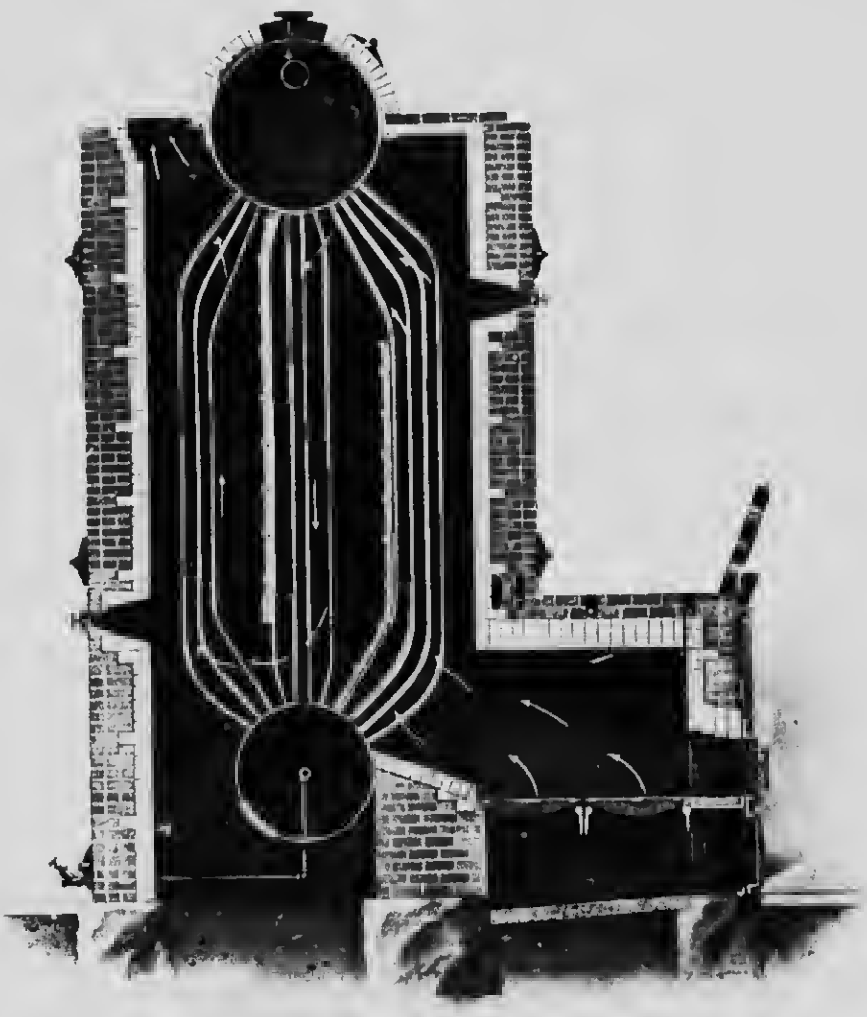
TORONTO, ONT.

MONTREAL OFFICE: 509 CANADIAN EXPRESS BUILDING.

PRODUCTS.

We are sole Canadian makers of ERIE CITY WATER TUBE BOILERS, Vertical and Horizontal.

We also make BOILERS of all kinds for any service: RETURN TUBULAR, FITZGIBBON, SCOTCH MARINE, SCOTCH DRYBACK, LOCOMOTIVE AND SUBMERGED TUBE.



SECTIONAL VIEW OF ERIE CITY VERTICAL BOILER AND FURNACE.

OTHER PRODUCTS.

Tanks—Air, Oil, Varnish, Soap and Lye Tanks.

Plate Work—Penstocks, Stand Pipes, Steel Tanks, Stacks, etc.

CONTINUED ON NEXT PAGE

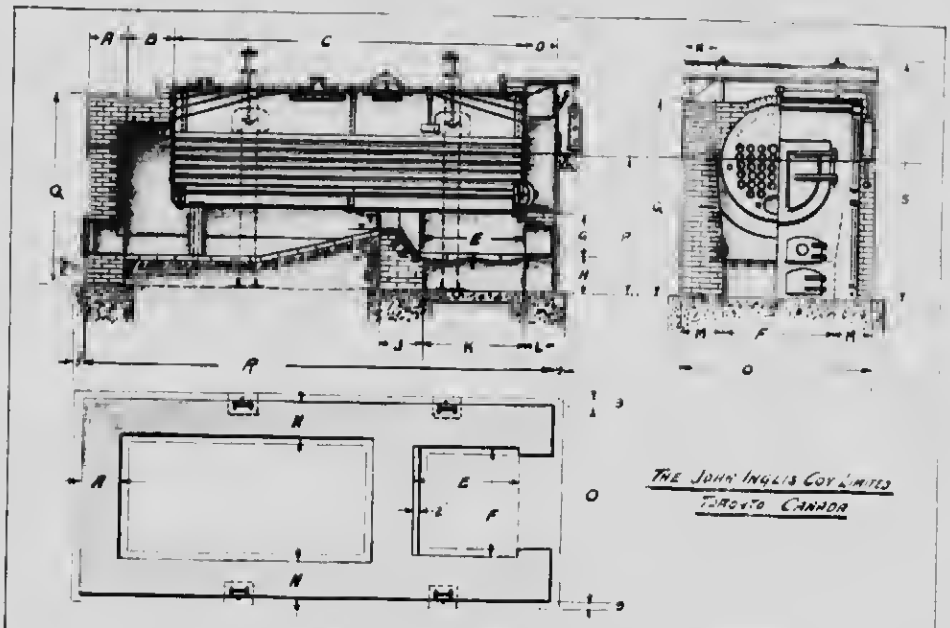
THE JOHN INGLIS CO., LIMITED

ENGINEERS AND BOILERMAKERS,

14 STRACHAN AVENUE,

TORONTO, ONT.

BOILERS OF ALL KINDS FOR ANY SERVICE.



RETURN TUBULAR BOILER SUSPENSION SETTINGS

DIAMETER	LENGTH	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	NO AND SIZE OF TUBES	HEATING SURFACE	FIRE GRATE	COMMON BRICK	FIRE BRICK	STANDARD SIZE OF BOILERS
30	8-0	13½	24	96	14	36	24	30	21	22	34	12	18	13½	60	65	81	12-3½		8	22-3	174	580	5200	3500	
30	10-0	13½	24	120	14	42	24	30	21	22	40	12	18	13½	66	65	81	14-3½		8	22-3	216	620	6200	3400	
36	10-0	13½	24	120	14	42	30	30	21	22	40	14	18	13½	66	69	84	14-3½		8	32-3	305	675	6600	4300	
36	12-0	13½	24	144	14	48	30	30	21	22	46	14	18	13½	66	69	84	16-3½		8	32-3	365	725	6600	4700	
42	10-0	13½	24	120	14	42	36	30	21	22	40	14	18	13½	72	72	93	14-3½		9	38-3	363	875	8300	5000	
42	12-0	13½	24	144	14	48	36	30	21	22	46	14	18	13½	72	72	93	16-3½		9	38-3	434	930	9300	6700	
42	14-0	13½	24	168	14	48	36	30	21	22	46	14	18	13½	72	72	93	18-3½	117	9	38-3	504	980	10300	7500	
48	12-0	18	24	144	16	48	42	30	23	22	46	18	18	13½	78	77	97	16-10	125	10	44-3	503	1100	10400	7800	5-8
48	14-0	18	24	168	16	48	42	30	23	22	46	18	18	13½	78	77	97	18-10	125	10	44-3	584	1200	11300	8000	5-8
54	12-0	18	24	144	18	48	48	36	26	27	46	18	18	13½	84	89	108	17-0	140	10	56-3	628	1300	14000	8500	2
54	14-0	18	24	168	18	48	48	36	26	27	46	18	22½	18	93	89	108	19-0	140	10	56-3	733	1400	15000	9000	2
54	16-0	18	24	192	18	54	48	36	26	27	52	18	22½	18	93	89	108	21-0	140	10	56-3	846	1475	17200	11200	2
60	12-0	18	28	144	18	48	54	36	22	27	46	16	22½	18	99	88	110	17-4	142	10	70-3	774	1490	16780	11600	7-2
60	14-0	18	28	168	18	54	54	36	22	27	52	16	22½	18	99	88	110	19-4	142	10	70-3	899	1470	18000	11900	7-2
60	16-0	18	28	192	18	60	54	36	22	27	58	16	22½	18	99	88	110	21-4	142	0	54-3½	937	1550	20000	13300	7-2
66	12-0	18	28	144	19	48	60	42	24	27	46	18	22½	18	105	99	125	17-5	158	10	72-3½	977	1550	19000	12500	7-8
66	14-0	18	28	168	19	54	60	42	24	27	52	18	22½	18	105	99	125	19-5	158	10	72-3½	1156	625	21000	14500	7-8
66	16-0	18	28	192	19	60	60	42	24	27	58	18	22½	18	105	99	125	21-5	158	10	72-3½	1217	1700	23300	16000	7-8
66	18-0	18	28	216	19	66	60	42	24	27	64	18	22½	18	105	99	125	23-5	158	10	54-4	1353	1775	26000	18400	7-H
72	14-0	22½	28	168	19	54	66	42	24	27	52	18	27	22½	120	102	132	19-9½	168	12	90-3½	1344	1675	23000	15800	8-2
72	16-0	22½	28	192	19	60	66	42	24	27	58	18	27	22½	120	102	132	21-9½	168	2	90-3½	1471	1750	25800	17800	8-2
72	18-0	22½	28	216	19	66	66	42	24	27	64	18	27	22½	120	102	132	23-9½	168	12	72-4	1555	1850	27300	19500	8-2
72	20-0	22½	28	240	19	72	66	42	24	27	70	18	27	22½	120	102	132	25-9½	168	12	72-4	1724	1970	29700	21000	8-2

SPECIFICATIONS AND DATA RE OUR RETURN TUBULAR BOILERS

INFORMATION. Write us for complete information.

JOHN BRENNAN & CO.

Builders of High-Grade Steam Boilers, DETROIT, MICH.

PRODUCTS

The DETROIT FIREBOX BOILERS, properly proportioned for Steam and Hot Water Heating

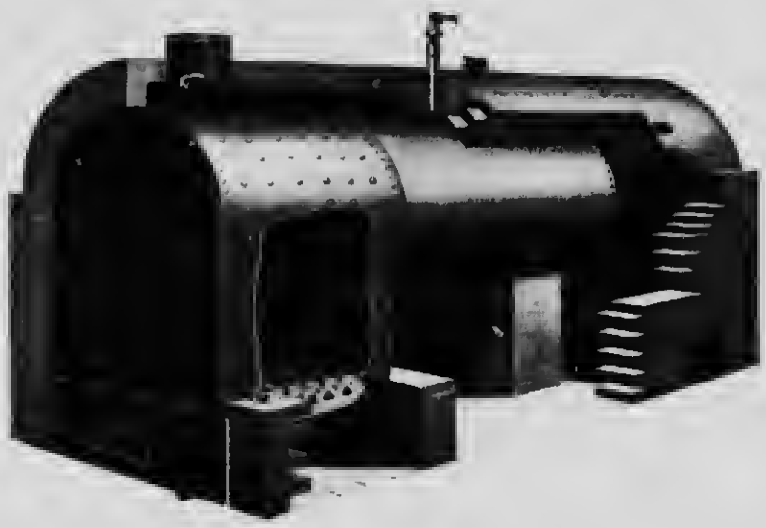
Also, WATER TUBE BOILERS, SCOTCH MARINE BOILERS, INTERNALLY FIRED HEATING BOILERS, HORIZONTAL, TUBULAR BOILERS

DETROIT FIREBOX BOILER

The boiler is constructed throughout of steel plate with a tensile strength of 60,000 pounds per square inch, and is thoroughly braced and riveted with the best grade of mild steel rivets. It has no weak parts, being uniformly proportioned as to thickness and sizes, and tested to 125 pounds' pressure.

Burns either coal, wood or gas.

In service, it is practically automatic. Fire-doors are large, from 12 x 18 inches on the No. 1 size to 18 x 24 inches on the larger sizes, and fireboxes are of proper size for the service required. They are provided with sufficient hand-holes and cleanouts, none exposed to the action of the fire.



View of Detroit Firebox Boiler with Part of Brick Work Removed

CAPACITIES, SIZES AND PRICES DETROIT FIREBOX HEATING BOILERS

Number		00	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Diameter of Boiler	in	24	24	30	30	30	36	36	36	42	42	42	48	48	48	54	54	60	60	66	66	72	72
Length of Boiler over all	ft	5½	7½	6½	7½	8½	7½	9	10½	8½	10	11½	10½	12	13½	14	16½	15½	18	16	18	16	18
Width of Firebox	in	12	16	24	24	24	30	30	30	36	36	36	42	42	42	48	48	54	54	54	54	66	66
Length of Firebox	in	20	26	26	32	38	32	38	44	38	44	50	44	50	56	50	62	62	68	62	68	68	74
Height of Firebox	in	30	30	45	45	45	42	42	42	42	42	42	42	42	42	48	48	54	54	54	54	54	54
Heating Surface	sq ft	71	98	110	141	135	190	224	280	257	300	343	390	437	495	585	700	731	862	971	1087	1167	1325
Sq. ft. of Steam Capacity rated for each sq. ft. of Heating surface		0.8	7.1	1.7	7.6	8.2	7.1	7.6	7.7	8.5	8.1	8.7	8.9	9.0	9.0	8.9	8.8	9.5	9.8	9.8	9.5	9.8	9.8
Area of Grate	sq ft	2.6	3.1	3.1	5.1	6.1	6.7	8.0	9.2	9.5	11.0	12.5	12.8	14.5	16.5	18.7	20.6	22.8	25.0	25.3	28.0	30.7	33.4
Sq. ft. of Heating Surface for each sq. ft. of Grate		28	29	27	28	23	28	28	28	27	27	28	30	30	30	33	34	32	33	38	38	38	40
Diameter of Breeching	in	10	10	12	14	10	16	18	18	20	20	22	22	24	24	28	28	32	32	32	32	36	36
Diameter of Stack	in	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	30	30	30	30	34	34
Minimum Height of Stack	ft	40	40	40	40	40	40	40	45	45	45	45	50	50	50	50	50	55	60	60	60	60	60
Diameter of Stack for 2 Boilers	in									24	26	28	28	30	32	34	36	36	36	38	40	42	
Minimum Height of Stack for 2 Boilers	ft									50	50	50	50	50	50	55	60	60	70	70	70	70	70
Size of Steam Opening (one)	in	2½	2½	3	3	4	4	5	5	6	6	6	6	6	7	7	7	8	8	8	8	8	8
Size of Return (one)	in	2	2	2½	2½	3	3	3	3	4	4	5	4	5	5	5	5	6	6	6	6	6	6
Size of Safety Valve	in	1½	1½	1½	1½	2	2	2	2	2½	2½	2½	2½	2½	3	3	3	1½	1½	1½	1½	4	4
Number and Size of Supply and Return Openings for Water	in	1-4	1-4	1-6	1-6	1-6	1-6	1-6	1-6	2-5	2-6	2-6	2-6	2-6	2-7	2-7	2-7	2-8	2-8	2-10	2-10	2-10	
Height of Water Line	in	48	48	51	51	51	51	51	51	61	61	61	65	65	65	67	67	75	75	80	80	85	85
Height from floor to top of brick work	in	64	64	70	70	70	77	77	77	81	81	87	90	90	90	96	108	108	114	114	120	120	
Capacity Steam	sq ft	850	700	900	1000	1200	1400	1700	2000	2200	2500	3000	3250	3500	4000	4500	5200	5200	7000	8500	9500	10500	11500
Capacity Water	sq ft	875	1150	1425	1650	1950	2300	2775	3425	3800	4075	4900	5725	6525	7350	8500	10125	11425	13525	15500	17125	18750	21000
Price, Steam Boiler, Castings and Tools		$255	$270	$285	$300	$320	$375	$50	$115	$430	$450	$500	$550	$650	$715	$800	$915	$1200	$1300	$1500	$1600	$1800	$1950
Price, Trimmings for Steam Boiler		$18	$18	$18	$18	$10	$10	$10	$10	$21	$21	$21	$21	$21	$28	$28	$28	$30	$30	$30	$30	$44	$44
Price, Water Boiler, Castings and Tools		$265	$280	$295	$310	$330	$390	$415	$450	$475	$500	$575	$635	$695	$755	$880	$955	$1235	$	to $1610	$1840	$2030	

LIST PRICE OF EXTRAS AND CHANGES, TO BE ADDED TO LIST OF REGULAR BOILERS

For long Shell, each foot or fraction of a foot	$11	$11	$15	$15	$15	$19	$19	$19	$21	$21	$21	$12	$12	$12	$30	$30	$30	$30	$30	$30	$30
For longer Firebox, including Grate, each six inches	15	15	20	20	20	25	25	25	30	30	30	40	40	40	45	45	55	55	65	65	80	80	
Wrought Iron Rings	21	24	26	26	30	28	28	28	30	30	30	32	32	32	36	38	40	40	45	45	50	50	
Extra Stays and Braces for 150-pound Test	6	6	7	7	8	8	9	10	12	15	17	18	20	21	30	35	40	41	45	50	55	60	
Two Lugs on Shell	8	8	8	8	8	8	8	8	10	10	10	10	10	10	12	12	12	12	12	12	12	12	
Rear Flue Cleanout Doors	12	12	12	12	12	16	16	16	18	18	18	22	22	22	26	26	34	32	38	38	46	46	
Smoke-Box, Head and Doors for rear, when Boiler not encased in brick work	24	24	28	28	28	32	32	32	42	42	42	48	48	48	60	60	74	74	90	90	106	106	

Openings in Firebox for coal, $4.00 list per boiler

Boilers for 150-pound test pressure will be made with Wrought-Iron Rings, at above extra price.

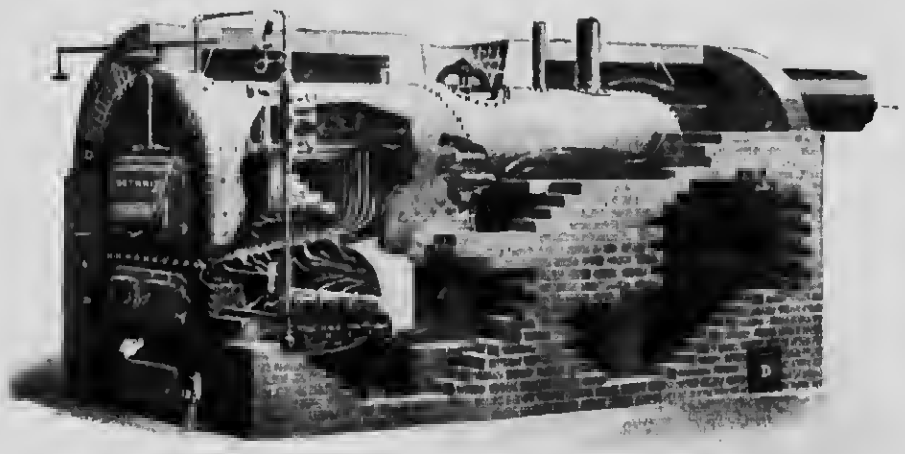
In regular boilers the Base Rings and Dome Rings are made of steel, which is much stronger than cast iron

CONTINUED ON NEXT PAGE

DETROIT SMOKELESS FIREBOX HEATING BOILER. FEATURES

The best Smokeless Boiler on the market for all classes of steam or hot water heating

(1) Combines an internal firebox type of boiler, consisting of water-grates, down-draft furnace and clutch oven setting, in one unit
(2) Construction mechanically correct
(3) No pipe joints or threads in the fire
(4) Only Smokeless Firebox Heating Boiler that can be set in battery
(5) No special firebrick required.
(6) Tubes forming down draft water-grate can be replaced without interfering with any other tube or part of the boiler
(7) Meets the requirements of all Smoke Ordinances
(8) Saves fuel



Detroit Smokeless Firebox Heating Boiler

SPECIFICATIONS DETROIT FIREBOX SMOKELESS HEATING BOILERS

Number		104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Diameter Boiler	inches	36	36	36	42	42	42	48	48	48	48	54	60	60	66	66	72	72
Length Boiler over all	feet, inches	8 7	10 2	11 7	9 10	11 1	12 11	12 4	11 10	15 1	15 10	18 4	17 10	20 4	18 4	20 1	18 1	20 1
Width of Firebox	inches	30	30	30	36	36	36	42	42	42	42	48	54	54	54	54	60	60
Length of Firebox	inches	45	54	57	54	60	66	66	72	78	78	84	90	90	90	90	90	102
Area of Upper Grate	square feet	5 8	7 1	8 1	8 5	10 11	11 3	11 7	11 1	14 9	17 10	19 11	21 11	21 2	21 4	23 8	28 4	31 1
Square feet of Heating Surface for each square foot of grate		31	30	30	30	29	30	31	34	31	31	30	33	37	41	42	40	42
Diameter of Breeching	inches	20	20	24	24	24	24	24	27	27	30	30	34	34	36	36	38	38
Diameter of Stack	inches	18	18	20	20	20	22	22	24	24	28	28	32	32	34	34	36	36
Minimum Height of Stack	feet	40	40	40	50	50	50	50	55	55	60	60	60	60	70	70	70	70
Diameter of Stack for two Boilers	inches				26	28	30	30	32	32	34	36	38	38	40	42	44	46
Minimum Height of Stack for two Boilers	feet				60	60	60	60	60	60	70	70	70	75	75	80	80	80
Size of Steam Opening (one)	inches	4	4	4	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Size of Return (one)	inches	3	3	3	4	4	4	4	5	5	5	5	5	5	6	6	6	6
Size of Safety Valve	inches	2	2	2	2½	2½	2	2½	2½	3	3	3	3	3	3½	3½	4	4
Number and Size of Supply and Return Openings for Water	inches	2 5	2 5	2 6	2 10	2 6	2 10	2 6	2 7	2 7	2 7	2 7	2 8	2 8	2 10	2 10	2 10	2 10
Height of Water Line	inches	50	50	50	60	60	60	65	65	65	65	67	75	75	80	80	80	80
Height from floor to top of brick work	inches	76	76	76	82	82	82	86	86	86	95	95	107	107	111	113	119	120

PRICE LIST DETROIT FIREBOX SMOKELESS HEATING BOILERS

Number		104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Capacity, Steam	square feet	1800	1900	2200	3500	3900	4500	4800	5400	6000	5800	7200	8200	9500	10500	12000	13000	15000
Capacity, Water	square feet	2600	2800	3600	4300	4700	5900	6200	7200	8200	9500	11400	14000	15500	17000	19600	21000	24500
Heating Surface	square feet	182	211	231	252	291	335	382	419	492	580	692	755	862	968	1092	1155	1320
Square feet of Steam Capacity as rated for each square foot of heating surface		8 8	8 9	8 8	9 9	9 9	9 9	9 8	9 8	10 0	10 0	10 1	11 1	11 0	10 8	11 0	11 2	11 4
Price Steam Boiler with Castings and Trods		$500	$620	$654	$710	$770	$830	$930	$1000	$1093	$1900	$1400	$1500	$1800	$2050	$2280	$2550	$2800
Steam Trimmings		20	20	20	21	24	24	21	24	30	30	30	40	40	40	40	44	44
Price Water Boiler with Castings and Trods		$615	$715	$750	$725	$785	$855	$955	$1015	$1084	$1320	$1420	$1725	$1875	$2080	$2290	$2500	$2830
Approximate Weight	pounds	4800	5200	5700	6800	7200	7900	8400	9100	9800	12100	13000	15000	17100	19400	21000	22400	24000

LIST PRICE OF EXTRAS AND CHANGES, TO BE ADDED TO LIST OF REGULAR BOILERS

For longer Shell, each foot or fraction of a foot		$10	$11	$10	$13	$15	$15	$12	$12	$12	$10	$10	$10	$11	$11	$11	$11	$11
Wrought Iron Spare Rings and Extra Stays and Rivets for 100 pounds working pressure		$68	$70	$72	Regular boilers for 60 lbs. working pressure			$72	$80	$100	$115	$125	$80	$100	$105	$115	$115	$115

Openings in Firebox for coil, $1 00 list per boiler.

DECARIE INCINERATOR CO.

McKnight Building,

MINNEAPOLIS, MINNESOTA.

PRODUCTS

INCINERATORS.

We build Incinerators of all capacities, for all purposes and to meet all conditions.

Unquestionably the general adoption of incineration by municipalities would do away with the Municipal Dump and make for better sanitary conditions and solve the problem of Refuse Disposal for every City and Town. To help make and keep our cities beautiful and to help maintain a high standard of cleanliness and health should be the aim and desire of every worthy citizen. To this end we wish to co-operate with you, and respectfully call your attention to our system of incineration.

The primary object in the performance of any operation is to have it done in a satisfactory manner with the least expense—in other words, efficiency. Our plants are designed with this end in view, the refuse being dumped from wagons, carts or electric hoists right into the incinerators, where it is held suspended by the upper grate and is directly attacked on all sides by the flames. By this method anything that is combustible is consumed at once and is used to assist in drying and burning the more wet material, and all organic matter and refuse is reduced to ash at the least expense for labor and fuel. By this method we are able to lower the cost of operation from fifty to seventy-five per cent. over other methods, and are able to burn material with a larger percentage of moisture than can be done in any other incinerator manufactured. Our incinerators furnish steam for the operation of the entire plant without the necessity of a boiler installation, but where power for lighting purposes is required it is advisable to install a boiler so that a constant steam pressure may be maintained regardless of the kind of refuse that is being burned.

Our aim is to design plants suitable for the needs of the cities where they are to be located. We have many special designs for a variety of different installations, and we would ask that you write us and let us advise with you in regard to your particular installation. We have made a study of the subject of incineration and we will be glad to give you the results of our years of experience. Our plants have been improved from year to year until our incinerators have become highly efficient, and have made for themselves a reputation for durability, low cost of operation and repairs. We will be pleased to give you any information that we can.

50 Ton Plant, North Braddock, Pa.

Interior Virginia, Minn., 25 Ton Plant

Write us as to your requirements

THE HONEYWELL HEATING SPECIALTY CO.

MANUFACTURERS OF

SPECIAL EQUIPMENT FOR HOT WATER HEATING PLANTS

FACTORY AND GENERAL OFFICE:

WABASH, IND., U.S.A.

HERALD SQUARE BUILDING,
141-145 W. 36TH ST.,
NEW YORK

CANADIAN OFFICE:
1008 EASTERN TWPS. BANK BLDG.,
MONTREAL.

ST. THOMAS WORKS:
GRANVILLE ST.,
BIRMINGHAM, ENGLAND.

PRODUCTS.

THE HONEYWELL HEAT GENERATOR.
THE HONEYWELL UNIQUE HOT WATER RADIATOR VALVE.
THE HONEYWELL TEMPERATURE and WATER REGULATORS

THE HONEYWELL SYSTEM OF HOT WATER HEATING.

The Honeywell System of Hot Water Heating is a method of installation which, by the use of the equipment mentioned above, insures a positive and uniform circulation throughout the entire piping system and radiation, with a wide range in water temperatures.

This system gives all the advantages of vacuum or steam heating without sacrificing the valuable features of ordinary hot water work.

Pipe and valve sizes are intelligently proportioned to reduce as low as possible the volume of water, and connections from mains to branches so designed as to give a perfectly balanced circulation.

Room and water temperatures are always under perfect and automatic control.

THE HONEYWELL HEAT GENERATOR.

The Honeywell Heat Generator is a device which, connected into the expansion pipe, develops *safely* and automatically, by the action of two columns of mercury, a pressure ranging from 0 to 10 pounds and seals the entire system from the atmosphere until a pressure of 10 pounds is produced.

The advantage of pressure in hot-water heating is to provide a strong circulation, equally effective at low as well as high temperatures.

With the Honeywell Heat Generator and method of piping, normal water temperatures are all that are required a greater portion of the time, but the range between a minimum of 85 deg. and the maximum temperature of 240 deg. gives a heating capacity to meet the demands of any climate or conditions.

INSTALLATIONS.

More than 136,000 Honeywell Heat Generators are now in use.

CO-OPERATIVE SERVICE.

If the architect will send us the plans of the building in which he wishes to install the Honeywell System, showing the boiler and radiators located, and their capacities marked as he has been accustomed to figuring, we will prepare complete guaranteed piping plans for our system without charge.

Complete instruction book for proper designing and installation of the HONEYWELL SYSTEM will be forwarded to architects and heating engineers on request.

Honeywell Equipment is supplied by the Canadian boiler and radiator manufacturers and jobbers.

THE CANADIAN POWERS REGULATOR CO., LIMITED

168 BAY STREET

TORONTO

AGENCIES MONTREAL—ENGINEERS' SUPPLY COMPANY 40 Alexander St.
WINNIPEG WALSH & CHARGES, Telfon 9168 VANCOUVER F. H. WALSH CO., 429 Pender St. W
CALGARY AMERICAN AGENCIES, LTD., 210 Eighth Ave. W

PRODUCTS

AUTOMATIC TEMPERATURE CONTROLLING APPARATUS. For Schools, Churches, Residences, Office Buildings, etc., for various mechanical processes, for sterilizers, drying ovens, etc. Wherever artificial heat is supplied and uniform temperature desired, our heat regulating apparatus may be employed.

AUTOMATIC HUMIDITY CONTROL. For all classes of buildings.

SERVICES

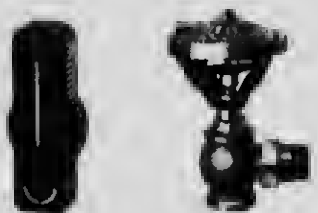
We are contracting engineers for the design and installation of our appliances. We maintain branch offices in the principal cities with a competent engineering and construction force, so as to insure the proper application of our apparatus. Powers Regulation has been in use for the past 20 years throughout the United States and Canada, and thousands of buildings have been equipped with it. Except in the case of a few specialties all installations are made by our own construction departments.

SPECIAL FEATURES.

The Powers Temperature Controlling Appliances and Systems stand pre-eminent in the field by reason of their simplicity and durability. The thermostats are all constructed upon the well-known vapor-disc principle which has now been used by us for the past 20 years with the greatest success. They are powerful in their action and free from the fine air passages, delicate springs and complicated mechanisms which characterize other devices used in this class of work. Great attention is paid to design and finish of apparatus, and, where desired, the thermostats will be provided in special finishes to match the hardware or decorative scheme of the rooms in which they are located.

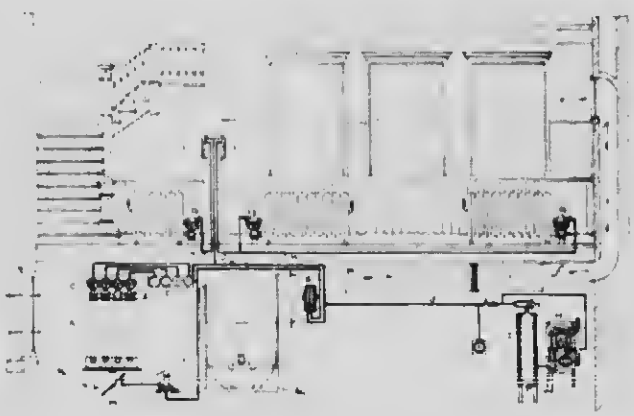
DESCRIPTION OF SYSTEM

Temperature control is accomplished by means of an instrument called a thermostat, which responds sensitively to temperature changes, and, using compressed air as a motive power, automatically regulates the supply of heating medium to the apartment where the thermostat is installed. Each apartment must have its thermostat and each radiator or other heat source its pneumatic valve or damper controlling the heat supply, all being connected together by a system of air piping communicating with an air compressor of suitable design.



Powers Thermostat and Radiator Valve

In Plate 4 we show a typical application of automatic temperature control as applied to the modern building with direct radiation in the rooms and mechanical ventilation. The room shown is typical of the others, in the fact that it is equipped with a thermostat "F" and diaphragm valves "GG" on the radiators. This room is also supplied with indirect heat for ventilating purposes, this coming from the blower which draws it through the heating coils "A." A thermostat, "E," located in the blower discharge controls automatically the steam supply to the coils, at the same time operating the by-pass damper beneath them for the purpose of passing unheated air whenever necessary. This thermostat will secure a constant delivery of air at a specified temperature, usually 70 degrees. The radiators in the rooms will furnish the additional heat necessary, and under



Typical application of Powers Regulation to Direct Steam Heating Plant with fan ventilation (School House Type.)

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DESCRIPTION OF SYSTEM.

the control of their thermostats will do it automatically. Our system of temperature control is applied with equal facility to steam or hot water heat, giving either the positive or graduated control of valves as may be desired

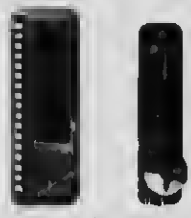
SPECIFICATION.

We are glad to furnish detailed specifications when requested, but a general specification may be written as follows

Furnish and install in connection with this heating apparatus the Powers System of Temperature Control, applying same to the following rooms * * * * * * * * * The system must be installed and guaranteed by the manufacturers or their agents.

HUMIDITY CONTROL.

We are specialists in this line and our services are at the disposal of those interested. We accomplish the desired results by methods that are simple and effective, and our apparatus is in every way durable and efficient. We solicit inquiry on this subject.



Powers Thermostats

A WORD TO ARCHITECTS AND ENGINEERS.

A system of heat regulation to be effective should be installed by workmen especially skilled in the art and operating under an organization trained in the work. The business is unique and unlike other trades. No two buildings or heating systems are exactly alike, and the application of the temperature controlling apparatus must be modified in almost every case to suit special conditions. The organization [illegible] of this work must be so large and varied in its resources as to be able to give special attention, and in every contract and must be of such permanency as to insure the apparatus having such [illegible] attention as it may need in the years following its installation

While the appliances we manufacture are simple and durable in the extreme, the necessity for repairs at some time is inevitable and should be considered. A system out of order, with its promoters out of business, is most undesirable.

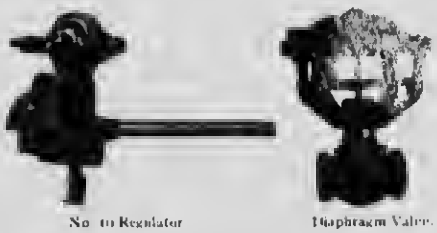
In our organization we have an engineering force specially skilled in planning and drafting specifications for work of this kind, and we are always at the service of architects and engineers desirous of applying heat regulation to their work.

We have special catalogues of all our appliances and are glad to send them out upon application.

SPECIALTIES

We make regulators for house heating boilers, furnaces and water tanks, etc. Of these we ask special attention to the Powers Hot Water Tank Regulator, as there is great need in almost all buildings.

HOT WATER TANK REGULATORS.



No. 10 Regulator

Diaphragm Valve.

Installation

Whenever the domestic hot water service is furnished by a steam heated tank, overheating, with consequent damage to plumbing and waste of fuel, is sure to occur unless the steam supply is automatically regulated. The No. 10 Powers Regulator is especially designed for steam heated hot water tanks. Installed as shown in the small drawing, it automatically regulates the admission of steam to the tank coil, thereby maintaining the water at a specified temperature. This specialty is sold direct by us to steamfitters and plumbers, who can easily install it under our instructions. The cost of such a regulator installed complete, under ordinary conditions, runs from $70.00 upwards, depending upon the size of the steam valve required.

SPECIFICATION—To specify, write as follows:

Equip the hot water service tank with a No. 10 Powers Tank Regulator with diaphragm valve arranged to control automatically the steam supply. Install this regulator in accordance with instructions furnished by its manufacturers.

MINNEAPOLIS HEAT REGULATOR CO.

ESTABLISHED 1885.

MINNEAPOLIS, MINN., U.S.A.

CANADIAN DISTRIBUTORS:

H. J. ST. CLAIR COMPANY, LTD

WINNIPEG:
352½ CUMBERLAND AVENUE.

TORONTO:
No. 69 YONGE ARCADE.

PRODUCTS. We manufacture exclusively AUTOMATIC TEMPERATURE REGULATORS for Hot Air Furnaces, Steam and Hot Water Boilers, Hot Water Tanks and Heaters, Natural Gas and Street Steam Service.

WHAT IT WILL DO. It will keep the house at an even temperature, save coal, prevent destruction of property by fire, and prolong the life of a heater by always closing the draft before the fire gains too much headway. It will relieve the mind entirely of the care of the draft dampers, and the fear that at night, or during your absence for a few hours, there is danger to life or property through neglect of the heater. The Regulator will demonstrate that no heating plant can be efficient or complete without it. It is especially adapted for residences.

ADVANTAGES. The Minneapolis Regulator has been on the market for twenty-eight years, and is more in use than any other Regulator manufactured. Nothing to wear out. Renew dry cells every two years or longer at an expense of fifty cents.

No cast-iron thermostat or tubes through the floors to detract from or mar the home. No special dampers required. No chains to pull. No loud noises when dampers are operating.

FIG. 1

THERMOSTAT. The Thermostat is shown in Fig. 1 (with time attachment). Temperature Regulators consist of a mechanical thermometer, technically called "Thermostat," as illustrated. This part of the device is located in the living-room, and registers the temperature the same as a thermometer. The pointer is set at a point on the scale corresponding with the temperature desired, which can be changed at will.

TIME ATTACHMENT. It is not necessary to use the Time Attachment except when desired. To illustrate: Upon retiring at night, swing the clock to any required position for winding; wind clock and alarm. Set the alarm hand, for instance, at 6.30 a.m. Shift the pointer to 65 or 60, or any other desired degree, and snap in place. The drafts remain closed unless the temperature in the room should go below the temperature point at which you have set the pointer, in which case the drafts will be opened until the temperature rises to that point. At 6.30 in the morning, without noise, the pointer will automatically be moved forward to any desired temperature, and by the time the family is up, the temperature will be at that point and the drafts automatically closed.

Our Attachment is mechanically perfect, very simple, and a perfect time controller.

MOTOR. Fig. 2, the Motor, as shown, is encased in a solid, pressed steel cover, No. 22 gauge, finished in black enamel (baked).

There is an index finger with scale "A," which travels as the motor is wound and unwound. A glance at the motor shows at all times the condition in reference to winding.

Dust and moisture proof. The cover has cotton sleeving at the shaft "B."

The motor is also provided with basement switch "C," by means of which the motor can be operated in the basement at will.

Easily wound by means of crank key. All of our motors, when run down, automatically leave the drafts closed.

FIG. 2

The parts of the motor are of pressed steel and brass (no cast-iron); the bearings are lathe-turned, running in brass bushings, as finely adjusted and fitted as the very best clock made.

All parts of our motors are made in our own factories, including the cutting of all gears, manufacturing of our own magnets, etc., thus insuring perfect work and adjustment.

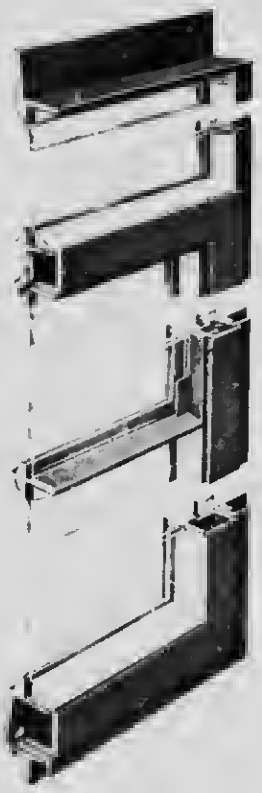
Lasts a lifetime. Requires winding about every week or ten days in the coldest weather.

THE TRUSSED CONCRETE STEEL CO. OF CANADA, LIMITED

HEAD OFFICE AND FACTORY:
WALKERVILLE, ONT.

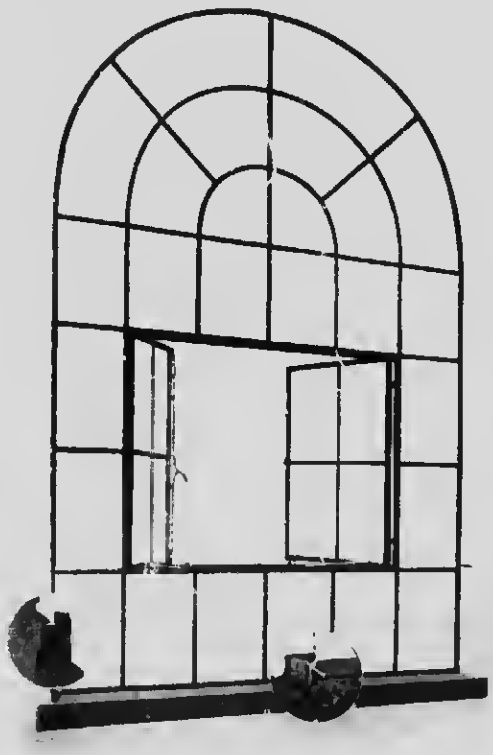
SALES OFFICES AND SHOW ROOMS:
TORONTO, 23 Jordan Street.
MONTREAL, 128 Coristine Building. HALIFAX, Chronicle Building.
WINNIPEG, 803 Union Bank Building. VANCOUVER, 52 Hutchinson Building.

PRODUCTS. KAHN SYSTEM SASH for use in Factories, Warehouses, Power Houses, etc. MADE OF SPECIALLY ROLLED MILD STEEL SECTIONS.



SECTION THROUGH TWO-POINT CONTACT VENTILATOR

SECTION 105



TYPICAL POWER HOUSE SASH

SPECIAL FEATURES. FIRE PROOF WEATHER PROOF PERMANENT

Specify the following features:

Section 105 as an outside frame section. Note the manner in which this section provides a wind-break, covers the mortar joints and provides a building line for the masons on both sides of the mortar joint.

A two-point contact ventilator.

Four Clips to each pane of glass to ensure that the glass will not be blown out; and also specify Kahn System Sash Putty, self-hardening and specially prepared for metal sash.

Ventilators hinged on Kahn's Patent Hinges. These hinges are an integral part of the sash and cannot be put out of order.

KAHN SASH JOINT

See also our advertisement on pages 34 and 35

STEEL AND RADIATION, LIMITED

LARGEST MANUFACTURERS OF STEEL SASH IN CANADA.

HEAD OFFICE: TORONTO, ONT.

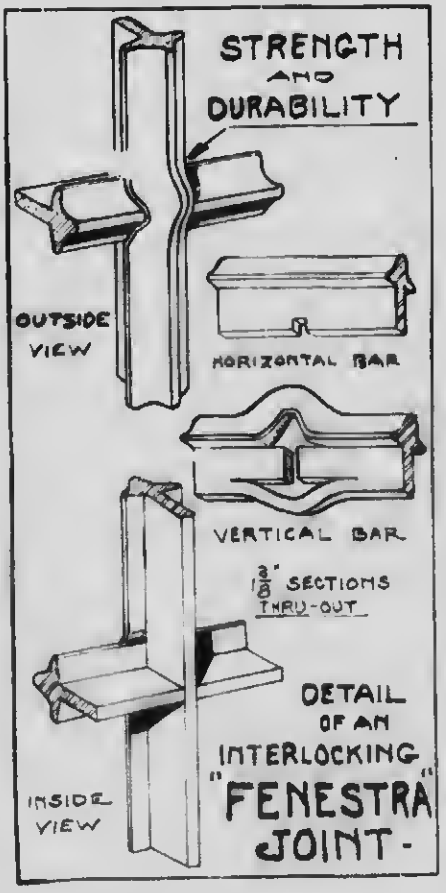
MONTREAL OFFICE: 304 UNIVERSITY STREET.

AGENCIES:

HALIFAX, N.S.: F. S. COOMBS. ST. JOHN, N.B.: R. MAX MCCARTY.
WINNIPEG, MAN.: HACKNEY TILE AND SUPPLY CO., LIMITED.
CALGARY AND EDMONTON, ALTA.: CANADIAN EQUIPMENT AND SUPPLY CO.
VANCOUVER, B.C.: E. G. CULLEN.

PRODUCT. "FENESTRA" SOLID STEEL SASH MADE IN CANADA absolutely Fireproof and Weatherproof, for Factories, Warehouses, Foundries, Power Houses, Tram Sheds, and Fireproof Structures of all kinds.

"FENESTRA" JOINT. To manufacture the "FENESTRA" joint a slot is first punched in the stem of the vertical muntin. The head and locking wing of this bar then expanded (see Vertical Bar) to allow the horizontal muntin, which has a small nick (see Horizontal Bar), being passed through, after which the head and locking wing are pressed out against and into the horizontal bar, forming a self-contained interlocked joint, thus making it impossible for the joint to open, should the sash be vibrated by wind or other means. It will be readily seen that the amount of material removed is thus exceedingly small, under 20%. It is not possible to construct a mitre joint unless 50% of the material is removed. The EFFICIENCY OF THE "FENESTRA" JOINT is accordingly far greater than that of any other sash on the market.



QUALITY. The "FENESTRA" joint, which is formed cold, necessitates the use of steel of uniform mildness, and ductility. This protects the buyer from the use, even accidentally, of brittle or a poor quality steel.

SIZES. Because of the strength of the "FENESTRA" joint, it is possible to use sections that will permit the delivery of 25% more light through an opening than heretofore available. We can fill large openings, there is no limit to the size.

VENTILATION. Ventilation in "FENESTRA" Sash can be as large as 100%, and we guarantee all ventilators to be absolutely weatherproof. See detail of Double Weathering on the following page.

GLAZING CLIP. Our "Glazing Clip," comprised of a flat steel strip contained in the joint which bent back over the glass, makes it impossible for the glass to fall out unless broken.

STYLE. "FENESTRA" has a character and finish. A natural curve at each joint breaks the monotony of outline, noticeable in other sash, and gives "FENESTRA" an appearance quite its own.

STEEL AND RADIATION, LIMITED, are the only manufacturers of "FENESTRA" Sash in Canada.

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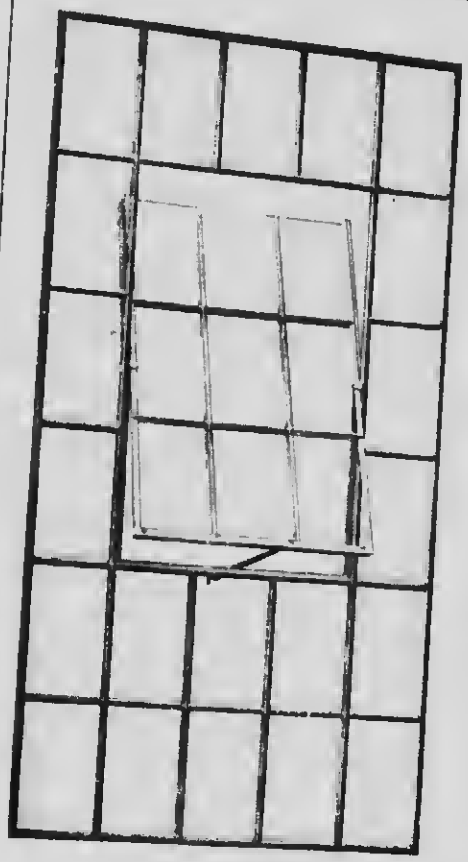
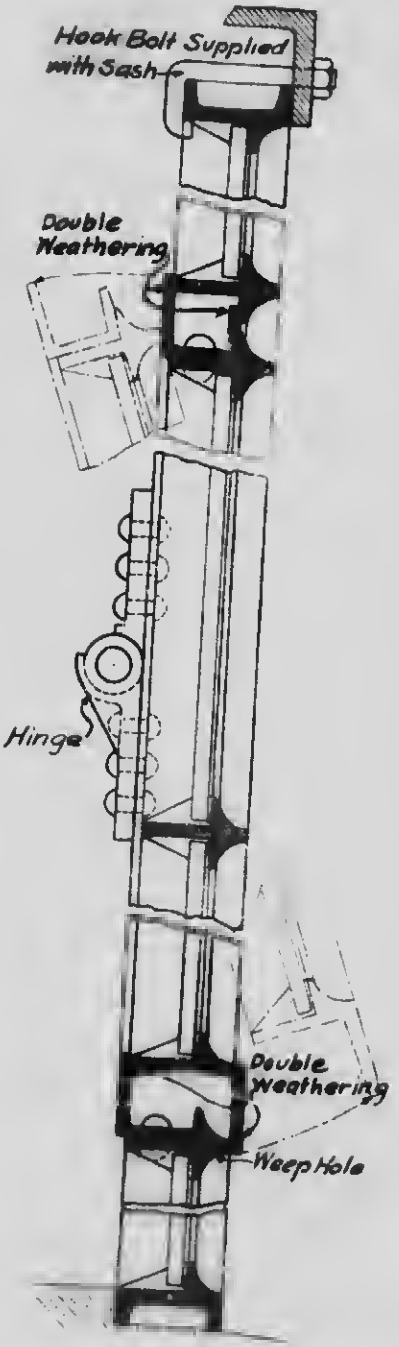


Y5692 — 5'-2⅞" x 9'-0".

"FENESTRA" STANDARDS

Standards in "FENESTRA" are designed to take 12 inch x 18 inch and 14 inch x 20 inch glass size. The initial letter "Y" denotes the former, and "Z" the latter. Our standard sash is known by numerals. The first figure denotes the number of panes wide. The second figure denotes the number of panes high. The third figure, the number of ventilators. The fourth figure, the number of panes in ventilator. The fifth figure, the number of panes the ventilator is above the sill. Hence the sash shown is Y 56192.

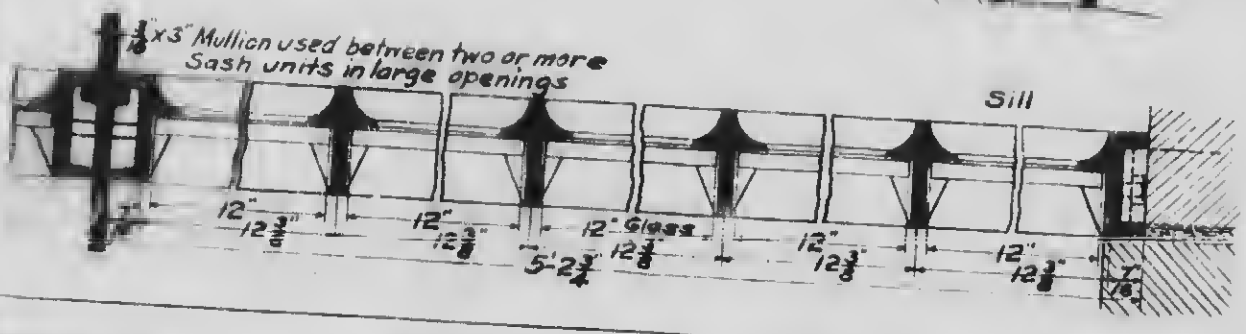
All ventilators are horizontally pivoted as shown, unless otherwise specified.



The cost of "FENESTRA" is governed by the quantity of material involved, the size and uniformity of openings, and the amount of ventilation used in each sash unit. We aim to obtain information regarding prospective work in time to consult with our customers concerning details of building construction. In this way we are able to give the benefit of our experience in so planning openings as to secure the advantages of our product without unnecessary expense.

By using standards you insure quicker delivery, and reduce the price.

To find the size of "FENESTRA" take size of glass, add ⅛ of an inch, multiply by the number of panes, add ⅞ of an inch, this will give the over all dimension of the sash.



THE A. B. ORMSBY COMPANY, LIMITED

TORONTO. WINNIPEG.

ASSOCIATED WITH

THE METAL SHINGLE & SIDING CO., LIMITED,

PRESTON, MONTREAL, SASKATOON, CALGARY, EDMONTON, REGINA.

HOLLOW STEEL TRIM.
METAL STORE FRONTS.
ROLLING STEEL DOORS.
SKYLIGHTS, CORNICES.

VAN KANNEL REVOLVING DOORS.
INTERIOR STEEL AND BRONZE DOORS.
BRONZE AND COPPER WINDOWS.
ORMSBY LUTTON STEEL SASH.
POND CONTINUOUS STEEL SASH.

STEEL PARTITIONS.
TIN CLAD DOORS.
FOLDING DOORS.
METAL CEILINGS.

"UNDERWRITERS" FIREPROOF WINDOWS AND DOORS. "CANADIAN METAL PRODUCTS."

MADE IN CANADA.

THIS IS AN EXAMPLE OF HOLLOW STEEL CONSTRUCTION

FINISHED IN CIRCASSIAN WALNUT

PRODUCTS:

HOLLOW STEEL BAKED ENAMEL FINISHED DOORS, PARTITIONS, BORROWED LIGHTS, TRANSOMS, WAINSCOT, BASE, CHAIR RAIL, PICTURE MOULDING, WIRE CORNICE, ETC

Every interior trim member made of steel, faultlessly finished, indestructible, unburnable, an actual and positive fire prevention, killing the blaze wherever it starts

BRONZE COVERED WINDOWS, with interior steel trim. A new product, covered in the only efficient way by machine

THERE IS NO METAL MORE BEAUTIFUL THAN BRONZE

NO METAL THAT LASTS LONGER OR STANDS MORE.

IT CANNOT RUST, NEEDS NO PAINT.

STEEL DOORS AND TRIM. BRONZE WINDOWS.

THE TWO PRODUCTS WHICH ALONE CAN MAKE THE FINISH IN YOUR BUILDING EVERLASTING

PROOF AGAINST FIRE, AND VAULT BEAD HELL, AND ARCHITECTURALLY CORRECT

FIRE PROOF EVERLASTING

Your contours must and will be what you expect. Wood and metal must and positively do adhere. This window fills every exterior opening in the Woodworth Building, New York City, installed by the U. S. Metal Products Company.

It is the window we offer to you.

We invite your inspection and inquiry.

CONTINUED ON NEXT PAGE

THE A. B. ORMSBY COMPANY, LIMITED

ASSOCIATED WITH

TORONTO. THE METAL SHINGLE & SIDING CO., LIMITED, WINNIPEG.

PRESTON, MONTREAL, SASKATOON, CALGARY, REGINA, EDMONTON.

THE ORMSBY SIMPLEX REVERSIBLE WINDOW

ADAPTABILITY. The most efficient window made to day for office buildings, hotels, apartments, banks, factories, warehouses or residences.

MATERIAL. Made in Bronze, Copper or Iron. Covered Hollow Bronze, Copper, or Galvanized Iron or Solid Steel or Brouze Sections.

ADVANTAGES. May be used as single or double sash, vertically arranged.

As single or double casements, swinging out, or in any combination desired.

Sash, partially open, act as louvres, affording perfect ventilation and protection at the same time.

All Sash reverse and may be cleaned entirely inside the building. (See cut)

In Hollow Metal these windows are approved and labelled by the Underwriters.

A combination of qualities hard to beat.

Complete information upon request.

THE ORMSBY HABERLE REVERSIBLE BRONZE COVERED WINDOW.

ADVANTAGES. Normally operated as a Double-Hung Window (see cut), absolutely weatherproof, simple in detail and construction

For cleaning purposes, both Sash open in (see cut). Wall Bolts are unnecessary. Window cleaners never are forced to risk their lives or those of passers-by below by going outside the building to clean the glass

Bronze never needs to be protected against the elements; therefore, no expense for upkeep. (These windows can be covered with iron at a lesser cost, but so made, they naturally require to be finished from time to time.)

INSTALLATIONS. See the installations of this window in

The Dominion Bank, Toronto	Over 400 openings.
The Methodist Book Rooms, Toronto	" 400 "
The Guarantee Building, Montreal	150 "

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THE A. B. ORMSBY COMPANY, LIMITED

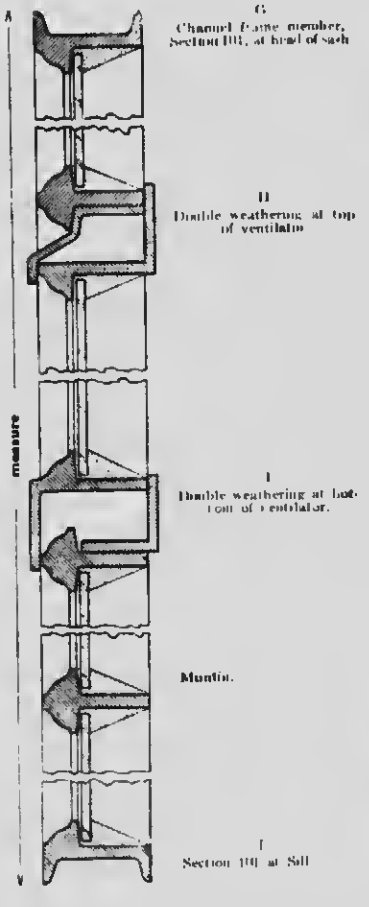
TORONTO. WINNIPEG.

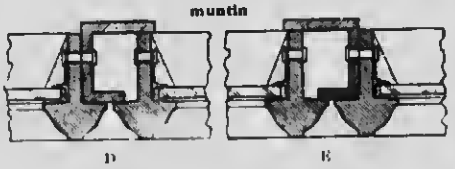
ASSOCIATED WITH
THE METAL SHINGLE & SIDING CO., LIMITED,
PRESTON, MONTREAL, SASKATOON, CALGARY, EDMONTON, REGINA.

ORMSBY-LUPTON STEEL SASH.

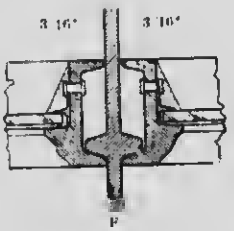
(Patented and patents pending)

DETAILS ARE ONE HALF FULL SIZE.

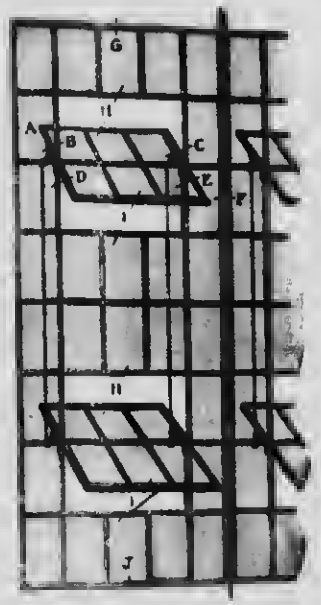




Taken below pivots, showing double weathering.

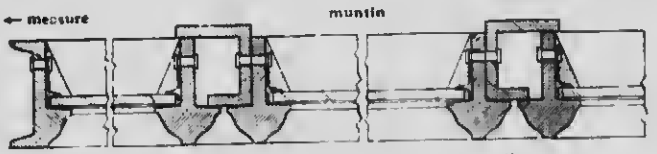


Showing Standard mullion, Section 102, between sash.



TYPICAL ORMSBY LUPTON STEEL SASH

Two arms are used to connect upper and lower ventilators. They are placed at the pivots and assure control of both ventilators in alignment



Section 101 Taken above pivots, showing double weathering at Wall Jamb

ADDITIONAL PRODUCTS.

"UNDERWRITERS" HOLLOW METAL WINDOWS AND TERNE CLAD DOORS. Automatically closing, approved by the Underwriters, insuring lowest rates.

VAN KANNEL REVOLVING DOORS, panic-proof, and capable of handling 200 per minute, 100 people in each direction.

ORMSBY COUNTERBALANCE FREIGHT ELEVATOR DOORS, one half opening up, the other down, mutually counterbalancing sections terne clad or corrugated iron in angle frames.

KALAMEIN IRON, BRONZE AND COPPER-COVERED DOORS AND WINDOWS. All members drawn through machined dies. Fireproof and lasting.

ROLLING STEEL SHUTTERS AND FOLDING DOORS OF ALL TYPES.

SKYLIGHTS, CORNICES, CORRUGATED SHEETS, ROOFING.

GEORGE WRAGGE, LIMITED

GEORGE WRAGGE, LIMITED

WARDRY WORKS,
MANCHESTER, ENGLAND.

AGENCIES:

MONTREAL:
THE JAS. WALKER HARDWARE CO., LTD.

TORONTO:
JOHN LINDSAY.

WINNIPEG:
WILLIAM H. THORNHILL CO.

CALGARY:
CANADIAN EQUIPMENT & SUPPLY CO., LTD.

VANCOUVER:
E. G. CULLEN.

PRODUCTS. Manufacturers of high-class STEEL AND BRONZE CASEMENT WINDOWS AND LEADED LIGHTS.

QUALITY. The good name for quality of workmanship which follows our work is the result of many years' practical experience, the outcome of severe tests in actual operation, and in our own testing department. Every casement is subjected to thorough inspection before leaving our factory, and the risk of faulty work reaching a job is thereby reduced to a minimum. Failures in construction are, consequently, almost impossible.

GUARANTEE. Subject to rebate being approved by us, we guarantee our casements weathertight and dustproof

ADVANTAGES. Wragge Casement Sash are indestructible and fireproof.

They are neat and enhance appearance of building

Maximum amount of glass surface is obtained, while casements are weatherproof and dustproof; facility in opening and closing. Maintain rigidity for all time, and do not get out of order, or sag, as do wood sash

SINGER BUILDING, NEW YORK. CASEMENTS — ARCHITECT
We supplied and fitted over [illegible] steel hung, safety cleaning casements for this Building, the whole being completed in 24 weeks from date of order

CONTINUED ON NEXT PAGE

SPECIFICATION FOR WRAGGE'S CASEMENTS.

WORKMANSHIP

All casement frames and sash shall be formed of best quality steel, free from blemishes and imperfections. Bars shall be of uniform dimensions and perfectly straightened. All joints shall be machine made, riveted and brazed. The casements shall then be oiled and painted one coat pure red lead, and a finishing coat of approved colour of white lead and oil paint applied.

TYPE

Specify the type desired for the different cases, the number of leaves into which the sash shall be divided and how the sash shall be hinged or pivoted. See our catalogue for the various sections suitable for the different requirements. Our representatives will be glad to give expert advice in making these selections.

FIXING EUROPEAN METHOD.

See that the casement will go into the opening freely and that no binding of the frames takes place. If there is any "binding" the stone or wood must be cut down until the casement will go in easily.

In stone or terra cotta work mark off and carefully cut circular holes opposite those in the steel frame and plug same with hard wood or lead plugs.

Bed the frame into the rebates with metallic cement and screw to the plugs, taking great care that the steel frame is not twisted in screwing up. This is very important. If the frame gets out of plumb, loosen the screws, pack between the stone and frame and tighten up again. Any distortion of the frame will prevent the casement bedding properly to the outer frame when closed.

See that the casement is working freely and then point up with best quality mastic cement inside and outside, taking care to see that all the outlet holes in the sill are clear.

The European Method of fixing is suitable for openings where the stone, terra cotta or other masonry jamb is finished clear through to the inside, as in the case of the tracery in Gothic church work, etc.

PRINCETON UNIVERSITY BUILDINGS
PRINCETON, N. J.

CRAM, GOODHUE & FERGUSON
ARCHITECTS

FIXING CANADIAN METHOD

In Canada, where the weather conditions are more severe, and the finish of the jambs of openings is different from the practice usual in Europe, it is better to have, in addition to the frame of the casement, a furring frame, set in Portland cement, either a Z, T or angle section, as the details of the jamb make most suitable. This furring frame can either be built into the masonry as the walls are constructed, or metal fastening lugs may be built into each side of the opening as the work proceeds, and the furring frame screwed to these lugs later. This furring frame is then pointed with mastic cement. The outer frame of the casement is then screwed to this furring frame with screws.

GLAZING

First lay a small quantity of mastic or metallic cement into the rebate to be glazed, then place the glass in position and wedge up at points indicated in illustration, so that the weight of glass does not distort the casement, and see that the sill clears the corresponding section. Then place pegs of steel, lead or hardwood in the holes provided for that purpose and point up with metallic cement, or else secure with metal glazing fillets. Do not paint the outside painting until dry.

GLAZING FILLETS

For all large casements we strongly recommend metal glazing fillets which make a better looking and more secure glazing than the usual front pointing.

METALLIC CEMENT

In glazing and fixing casements, ordinary glaziers' putty should not be used, as nothing but mastic or metallic cement mixture will adhere to the metal.

DETAILS

The contractor shall prepare and submit to the architects, scale and full size details of the casement windows. These details shall be approved by the architects before the work is proceeded with.

HARDWARE.

The contractor shall furnish and fit all hardware, including hinges, pivots, fasteners, etc. Hardware shall be (gunmetal bronze plated to match other hardware). (Our representative will give advice as to the selection of suitable hardware.)

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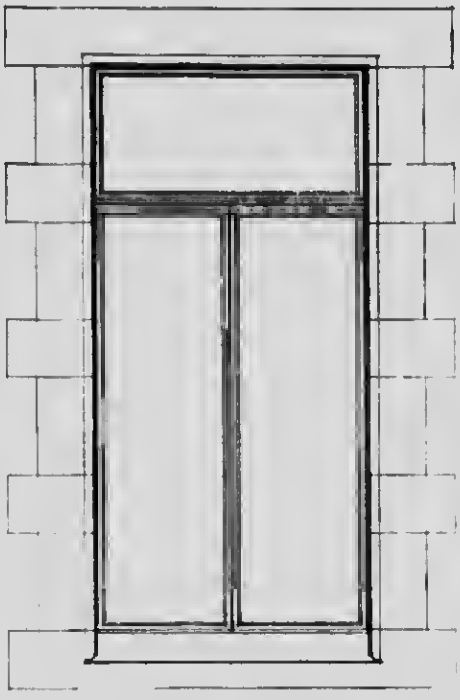
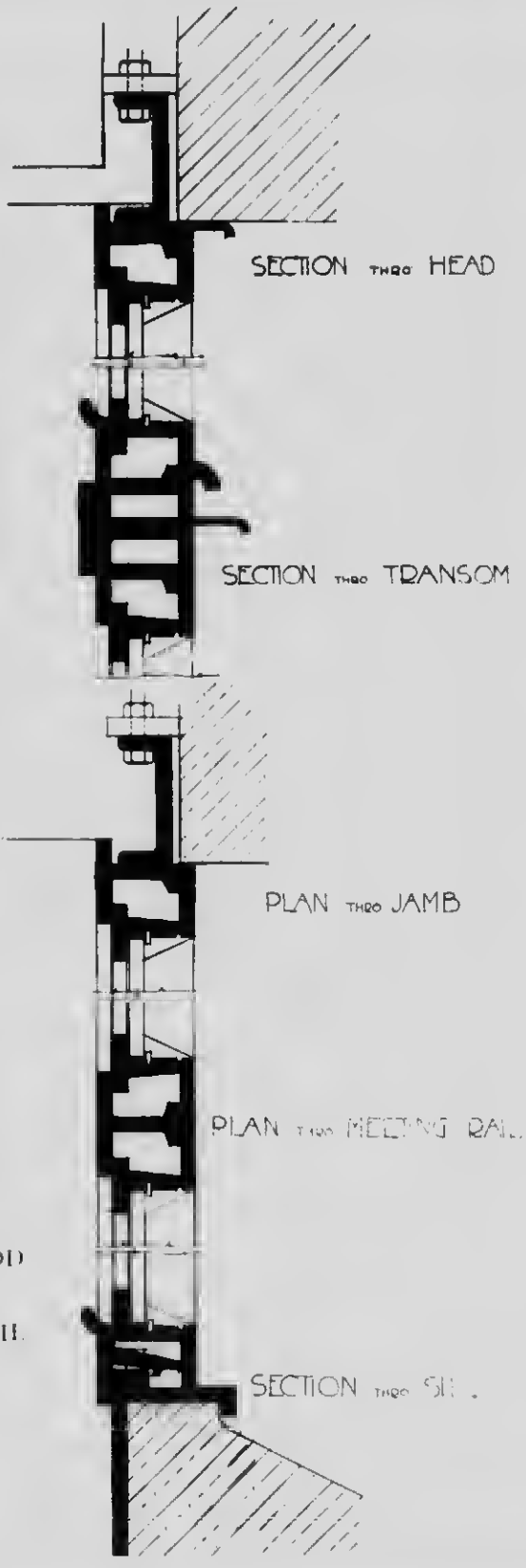


HALF INCH SCALE
AND
HALF FULL SIZE DETAIL
OF
SUGGESTED CANADIAN METHOD
OF SETTING
WRAGGE'S METAL FRAME SASH



CRITTALL CASEMENT COMPANY

MANUFACTURERS OF

"UNIVERSAL" SOLID STEEL CASEMENTS

HEAD OFFICE FOR CANADA 65 VICTORIA STREET,
TORONTO, ONT

AGENCIES IN ALL PRINCIPAL CITIES. WORKS, BRAINTREE, ENG., AND DETROIT, MICH.

GENERAL. The greatest recommendation in favour of the "UNIVERSAL" CASEMENT, in preference to all other systems of metal window construction, is its simplicity and adaptability to all preparations of work and sizes of openings. The Universal Casement is made in three sizes of section, to produce windows of any practical dimensions, the section used being determined by our own engineers and governed by the size of opening to be filled.

MATERIAL. Crittall Universal Casements are made in Solid Steel, KOPEROID and Solid Bronze.

SOLID STEEL. The Commercial and Domestic Steel Casement is of solid steel rolled sections, thoroughly cleaned before painting and hung on solid bronze hinges. All Crittall Casements are sandblasted all over and dipped in zinc oxide before assembling. They are given a further priming coat of zinc paint before dispatch.

KOPEROID. Casements treated with our special KOPEROID process may be used as a substitute for solid bronze casements at a lower price. This allows their use where appearance and non painting are primary items. They can either be finished pure copper colour or, if preferred, can be made to have the exact appearance of a pure bronze casement, but, in either case, will turn a rich brown colour if left to tarnish naturally.

SOLID BRONZE. All Universal Sections are also made in this material. Bronze Casements are specially suitable for monumental buildings, churches, high-class public buildings, in countries where there are sudden changes of climate, or in conservatories or bath rooms where there is excessive condensation. They are absolutely rust proof, requiring no paint therefore costing nothing for upkeep.

PHOTO SHOWING DOUBLE OPENING CASES AT POINT OF ARROW

CANADIAN PACIFIC RAILWAY OFFICE BUILDING, TORONTO.
CRITTALL "UNIVERSAL" CASEMENTS INSTALLED THROUGHOUT.
DARLING & PEARSON, ARCHTS. C. A. PETTER & CO., LTD., AGENTS.

ADVANTAGES. The perfect window is one which

Is weathertight
Is permanent
Has low upkeep
Is fireproof.
Never rattles.
Does not warp or twist.
Never sticks
Easy to operate
Ventilation without draft
Allows maximum amount of daylight
Neat and artistic appearance
Makes provision for condensation.

The Crittall Window has all these features.

PROCESS. All corners and all brackets for fittings are welded, electrically or autogenously, no brazing being used. The omission of brazing and the use of the sandblasting process combine to make the Crittall Casement unique in its freedom from rust at time of erection, and subsequent expenditure in painting and upkeep will not be money wasted, as it would be on an article rusty from the outset.

"Universal" Casements have no screwed-on fillets for weathering; all pivoted casements have weathering contacts accurately milled and turn on a hardened steel ball.

CONTINUED ON NEXT PAGE

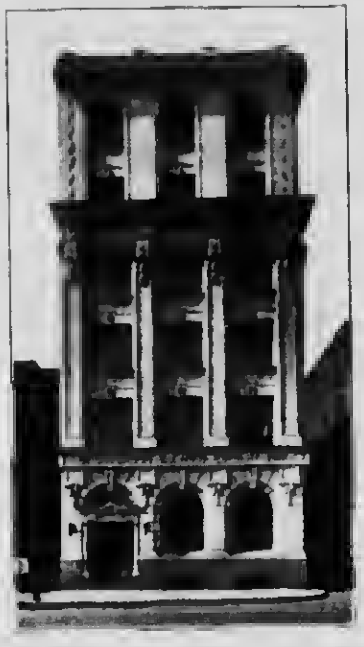
GLAZING.

The Universal Casement can be made to glaze from inside or outside without affecting price or detail. All windows should be glazed from inside for the following very good reasons.

In high buildings glass can be fixed or removed from inside without expensive or dangerous use of ladders or slings.

Solid metal face exposed to weather.

Residence Dr. Moorhead, Montreal. Edw. & W. S. Maxwell, Architects.



Otis Fensom Elevator Co. Building, Toronto.
Eden W. Goldsmith, Architect.

Hedmont Building, Toronto.
Bond & Smith, Architects.

ERECTION

If possible, we prefer to erect all our own work, as, no matter how perfectly a Casement is made, it will not give satisfaction unless properly fixed. We have a large staff of skilled erectors, and will quote for work erected in any part of Canada.

THORP FIRE PROOF DOOR CO.

"THORP RICHARDSON" FIREPROOF DOORS AND FINISH.
"Make Each Room a Separate Building."

1600-1616 CENTRAL AVENUE,
MINNEAPOLIS, MINN.

REPRESENTATIVES IN SIXTY-FIVE PRINCIPAL CITIES OF THE UNITED STATES AND CANADA.

PRODUCTS. Manufacturers of "THORP RICHARDSON" FIREPROOF DOORS and FINISH for Office Buildings, Hotels, Hospitals, Sanitariums, Theatres, Schools, Court Houses, Business Blocks, Stores, and Private Dwellings; TRANSOMS; CORRIDOR WINDOWS; DRAWN MOULDINGS; METAL-COVERED FRAMES and SASH.

ORNAMENTAL ENTRANCE DOORS a specialty. For these we use pure copper or bronze, and make a fireproof door which conforms to all the niceties of the architect's designs.

CONSTRUCTION. Fig. 1 shows the construction of the standard door, frame, and detail of one of the styles of trim. The panels are sunk by hydraulic pressure with one sheet to each side. The reinforcing band goes clear around the door, locking the sheets on all four edges. We fit and apply the hardware at the factory if same is furnished to us, or we will furnish same at list prices.

DETAIL. "Thorp Richardson" Doors are made in our standard detail and construction, or in special detail and standard construction, to follow architects' details. This enables them to be used with any scheme for which the buildings call. In following special designs, the covering may either be special locked or welded together so that the sheet on each side is in effect a single sheet. We do not depend on mortice joints or lag screws to hold the door together, and there are no joints to open.

FINISH. "Thorp Richardson" Finish is either duplex plate, old copper, or brass; grained to match any of the natural woods; flat, galvanized, or solid copper.

FIG. 1
"RICHARDSON" STANDARD SOLID PANEL DOOR, LIGHT OAK FINISH

FIG. 2
SECTION THROUGH "RICHARDSON" DOOR AND FRAME

This shows the core of three thicknesses, laid crosswise, covered with asbestos; also, the seamless, hydraulic stamped panel. Three single sheets on each side lap in a groove on all four edges, and are bound by a continuous steel band, further stiffening the door. Frames and trim are made, in our standard metal covered construction, to any detail.

FIG. 3
"RICHARDSON" STANDARD GLASS-PANEL DOOR, OLD COPPER FINISH

NOTE. The Underwriters' Standard for fireproof doors is based on a three-ply, built-up wood core, covered with sheet steel locked on.

The Thorp way of interpreting this specification is to line the three-ply wood core with heavy sheet asbestos, and cover the wood and asbestos with good 24-gauge sheet steel, locked by a patent process.

CONTINUED ON NEXT PAGE

THORP DOORS MAKE EACH ROOM A SEPARATE BUILDING.

Illustrations are taken from work furnished on orders and are simply indicative of the character of Thorp Doors. The theory of fireproof interior finish is to "make each room a separate building," and the Thorp product lends itself to this purpose for every class of fireproof structure. Our entire equipment and attention is concentrated on this one type of work, and we are in a position to give every service combined with the best workmanship.

B. & O. Office Bldg. Baltimore, Md.

ORNAMENTAL ENTRANCE DOORS.

We would call special attention to the increasing use of "Thorp Richardson" Doors covered with *solid copper or bronze*, made to architects' details, for exterior entrances. These have all the advantages and the appearance of cast doors, without the extreme weight or cost.

CO-OPERATIVE SERVICE.

Our estimates are based on the demands in each particular case, and we are always glad to make quotations on any work. Full-sized details and working drawings are furnished when required, and we invariably co-operate with the contractors to the end that everything shall be correct. Innumerable large buildings completely equipped without delay or a single replacement testify to our carefulness.

Write for booklet, fully explaining construction, economy and safety.

Main Entrance, Exchange National Bank, Little Rock, Ark. Charles L. Thompson, Architect.

GEO. W. REED & CO., LIMITED

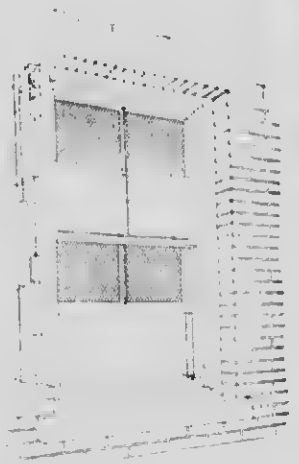
FIREPROOF DOORS AND WINDOWS, SKYLIGHTS, VENTILATORS AND GENERAL SHEET METAL WORK.

3[m] St. Antoine Street,

MONTREAL.

PRODUCTS. — Metal Fireproof Windows, Fire Doors, Skylights, Ventilators, including the celebrated Burt Exhaust Systems for Planing Mills, Shoe Factories, Pulp and Paper Mills, Cotton and Woollen Mills, Jewelry Factories, Foundries, etc., Asphalt, Cement and Mill Flooring, Sheet Metal Work and Roofing of all kinds.

FIREPROOF WINDOWS. — We manufacture Stationary, Pivoted, Counterbalanced, English Sliding Sash, or any style of window required. All windows are fitted with wired glass, and, where sash is movable, is arranged with fusible link attachment, which closes and locks window automatically at 160 deg. of heat.

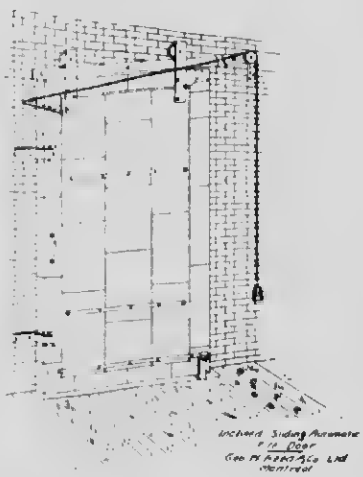


Sliding Window, for Store or Office Building.

FIRE DOORS. — These doors are made from start to finish in our own factory. The woodwork consists of three thicknesses of well seasoned white pine of good, sound quality, securely fastened together by wrought iron clinch nails. The covering is Prime Terne Plate, IC thickness, size 14 x 20 inches, every sheet stamped. All work is done under the supervision of the Underwriters' Laboratories, Inc., and bears their label, thus guaranteeing user the lowest rates of insurance.

Kalameined Door

KALAMEINED DOORS. — We also manufacture Kalameined Doors in large variety; any style of moulding may be obtained. While meeting all the requirements of the Underwriters, they are architectually attractive, and may be grained to match any wood.



FITTINGS. — Our Fire Door Fittings are made in our own factory and are of the most substantial nature.

AUTOMATIC CLOSING DEVICE. — Sliding and Hinged Fire Doors are counterbalanced by means of weights attached to door with cord and fusible link. The link fuses at 160 deg., which releases the weight, causing door to close by force of gravity.

SERVICES AND ESTIMATES. — We are prepared to quote on Doors and Windows erected in building or will furnish same complete ready for erection.

All our Fire Doors bear this Label.

EXHAUST SYSTEMS. — We design and install complete Exhaust Systems for Planing Mills, Shoe Factories, Pulp and Paper Mills, Cotton and Woollen Mills, Jewelry Factories, Foundries and Brass Finishing Shops, and factories of all kinds.

OTHER ADVERTISEMENT. — See Roofing, Skylights, Ventilators, etc., on page 76.

THE GOLDIE & McCULLOCH CO., LIMITED

GALT, ONTARIO, CANADA.

WESTERN BRANCH:
248 McDermott Ave.,
WINNIPEG, MAN.

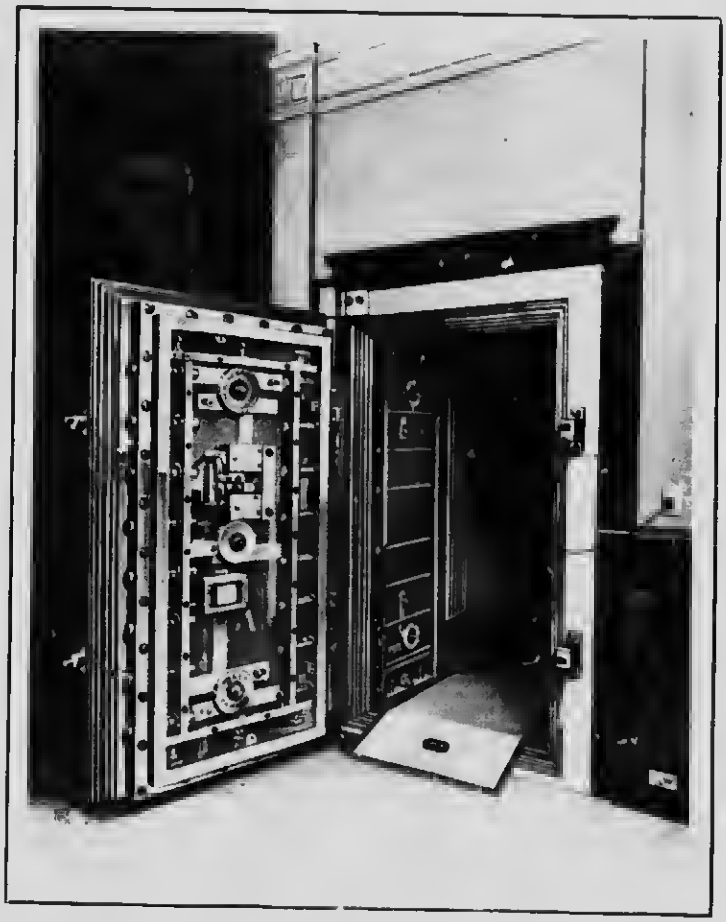
TORONTO OFFICE:
1101-2 Traders Bank Building.

QUEBEC AGENTS:
Ross & Greig, 412 St. James St.
MONTREAL, QUE.

B.C. AGENTS: ROBT. HAMILTON & CO., VANCOUVER, B.C.

PRODUCTS. SAFES, VAULTS, VAULT DOORS, DEPOSIT BOXES, PRISON CELLS, ETC.

ILLUSTRATION. The accompanying illustration shows the vault of the DOMINION BANK at Vancouver, B.C.



This is one of a large number of vaults of similar design recently installed by us.

SPECIFICATIONS. We are always glad to supply specifications, plans and full information to architects or others who contemplate the installation of vault work of any kind.

CONSTRUCTION. Our Bankers' Heavy and Extra Heavy Vault Doors are made of the best quality of five-ply w l chrome steel and iro . The hinges are of the heavy scroll crane design and work on ball bearings. All spindles have enlarged centres, to prevent driving in or drawing out, and, along with bolt work, are built into the doors.

These doors all have serrated tongues and grooved rubber door jambs and are made any desired thickness to suit purchaser.

PROTECTION Is the chief consideration when installing a vault, and during the 35 years that we have been building safes and vaults, it has been our constant effort to devise and manufacture for banking and monetary institutions safes and vaults that are as nearly impregnable as it is possible to make them, and we present with confidence the product of our manufacture, which has been proven to be at least the equal of any made. We want you to have our Catalogue. It is yours for the asking.

J. & J. TAYLOR, LIMITED

TORONTO SAFE WORKS,

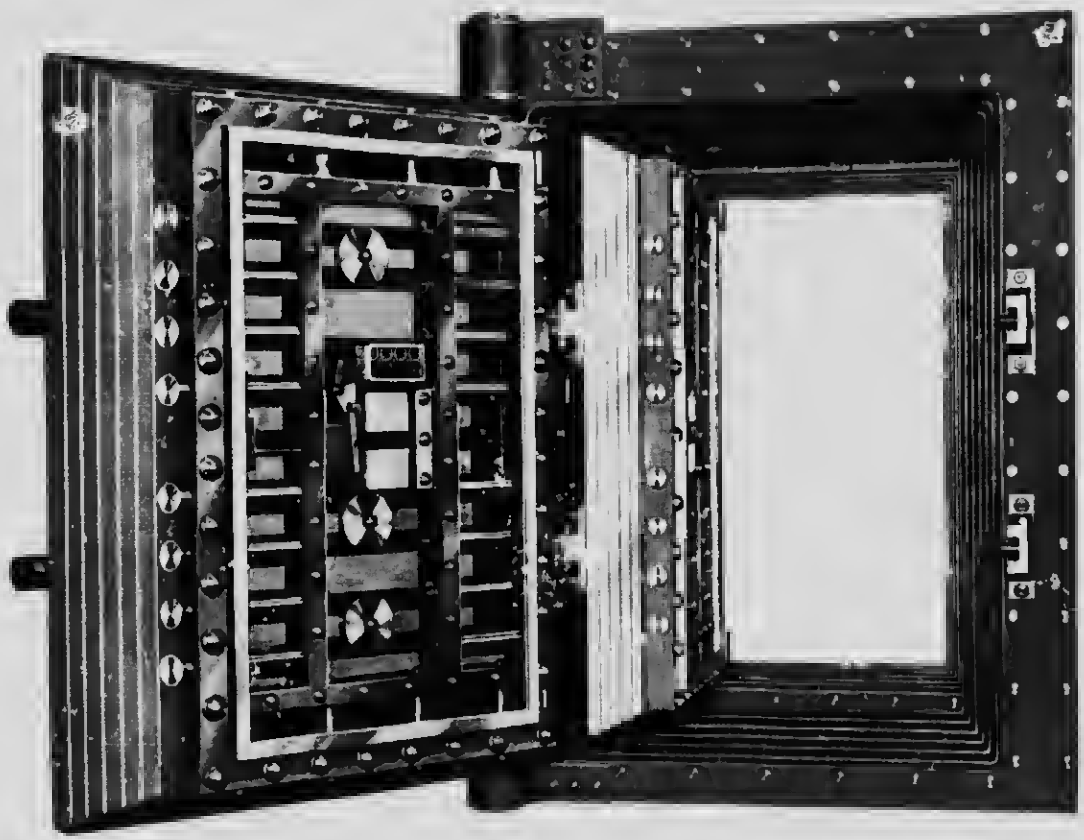
TORONTO, ONTARIO.

(ESTABLISHED 1855.)

AGENCIES:
MONTREAL. WINNIPEG.
VANCOUVER.

SAFES. VAULT DOORS. VAULT LININGS. DEPOSIT BOXES.

PRODUCTS. We have specialized for 59 years in VAULT DOORS, VAULT LININGS, SAFES AND DEPOSIT BOXES, and also manufacture STEEL CUPBOARDS, SHUTTERS, PRISON GATES, GRILLES, Etc.



REFERENCES. Two of the above Vault Doors were built by us for the Bank of Montreal and the Royal Trust Co., Winnipeg, being the heaviest vault entrances now on the American Continent (weight, 52 tons each). This is an example of our competence to supply the best.

Over 85 per cent. of all of the Head Offices of Chartered Banks and Trust Companies in Canada are equipped with our Safes or Vault Work. Our goods can be found also in many foreign countries—China, India, South Africa, South America, Mexico, Australia, New Zealand, West Indies, Bermuda, etc., etc.

FIREPROOF VAULT DOORS. Full information and sizes of Standard Fireproof Vault Doors will be found on pages 95 to 106 in our Catalogue. This will be gladly sent on request.

CO-OPERATION. We are glad to be of assistance to those desiring information or requiring specifications on this class of work.

THE DOMINION SAFE & VAULT CO., LIMITED

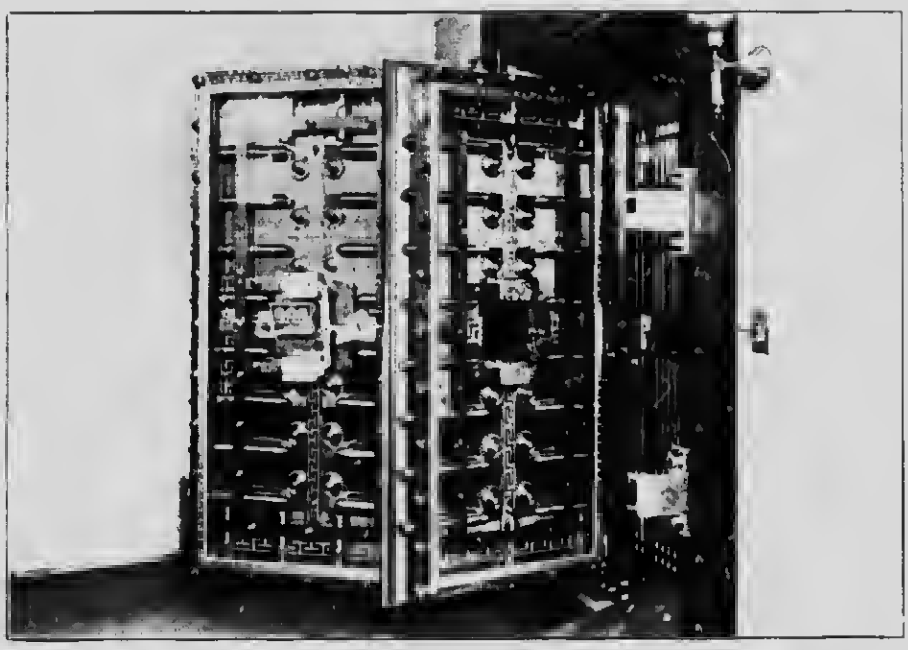
FARNHAM, P.Q.

SELLING AGENTS,

THE CANADIAN FAIRBANKS-MORSE CO., LIMITED

MONTREAL, TORONTO, ST. JOHN, N.B., WINNIPEG, CALGARY, SASKATOON, OTTAWA, VANCOUVER, VICTORIA

PRODUCTS. Manufacturers of SAFES, SAFETY DEPOSIT AND BANK VAULTS, ETC



This is an illustration of the Vault Doors installed by us for The Canadian Bank of Commerce, St. Catherine Street, Montreal. The entire work is up to date and modern in every way

FIREPROOF VAULT DOORS.

Cat. No. Door	Wall Opening Required		Clear Opening Through Vestibule	
	Height	Width	Height	Width
19	79	33	76	27 1/2
20	81 1/2	34 1/2	78	30
21	81 1/2	34 1/2	78	30
22	81 1/2	34 1/2	78	30

Vault Door No. 22.

We build all kinds of Vault Fronts to order and will be glad to furnish information.

WINNIPEG SAFE WORKS, LIMITED

50 PRINCESS STREET,

WINNIPEG, MAN.

PRODUCTS. Dealers in FIRE-PROOF SAFES, BURGLAR-PROOF SAFES, FIRE AND BURGLAR PROOF SAFES, RAILROAD SAFES, JEWELLERS' SAFES, SKELETON SAFES, WALL SAFES, HOUSE SAFES, FIRE-PROOF VAULT DOORS, FIRE-PROOF VAULTS, BURGLAR-PROOF STEEL VAULTS, SAFE DEPOSIT BOXES, EXPRESS MESSENGER BOXES, TIME LOCKS, COMBINATION LOCKS, KEY LOCKS, CUT-OFF SPINDLES, AUTOMATIC BOLT OPERATING DEVICES, ANTI-DYNAMITE DEVICES, JAIL CELLS, SPECIAL PATENTED ATTACHMENTS.

Sole Canadian Agents for the world-famous DIEBOLD SAFES AND VAULTS.

SIZES.

FIRE-PROOF TEMPERED STEEL VAULT DOORS.

STANDARD SIZES.

No.		Size of Vault Door Wide	Size of Vault Door High.	Wall Opening Required High	Wall Opening Required Wide.	Thickness of Wall Deep
1	Sizes.	2 ft. 4 1/2 in.	6 ft. 4 in.	6 ft. 6 in.	32 in.	20 in.
2		2 ft. 6 in.	6 ft. 4 in.	6 ft. 6 in.	34 1/2 in.	20 in.
3		2 ft. 6 in.	6 ft. 6 in.	6 ft. 8 in.	34 1/2 in.	20 in.
4		2 ft. 8 1/2 in.	6 ft. 4 in.	6 ft. 6 in.	37 in.	20 in.
5		3 ft. 4 in.	6 ft. 4 in.	6 ft. 6 in.	41 in.	20 in.

We make Vault Doors to fit any opening. Can be made to take any thickness of wall.

SAFE-CABINET. We draw the architect's attention to the SAFE CABINET, made in Marietta, Ohio, as a substitute for Vaults. Fire-proof as average vault, portable, very light, interior adjustable to any requirements, economical. The SAFE-CABINET bears the UNDERWRITERS' LABEL, and is the only fire-proof container that does.

Is a revenue producer.

CATALOGUE. Catalogue and full information furnished upon request.

THE SAFE-CABINET COMPANY, INC.

THE SAFE-CABINET AND OTHER STEEL OFFICE FURNITURE.

FACTORY AND MAIN OFFICE:
MARIETTA, OHIO.

CANADIAN AGENCIES:
WINNIPEG SAFE WORKS, LTD., WINNIPEG. MOECKEL & SCHURMAN, MONTREAL AND HALIFAX.

PRODUCTS. We are sole manufacturers of THE SAFE-CABINET, a high-grade, fire-resisting STEEL CABINET for general office use; THE S-C BOOK-UNIT, THE S-C LINE of STEEL OFFICE FURNITURE.

DESCRIPTION. THE SAFE-CABINET has double walls of finest sheet steel, with air-chambers between. Interlined throughout with fireproof material. No heat conducting connections between the walls.

Doors overlap, closing with tongue and groove joint; independent bar fastenings; improved combination lock. Interior equipment adjustable to all filing requirements.

CONSTRUCTION. THE SAFE-CABINET is constructed in such a manner that it is practically one-piece throughout. The outer walls are welded together and the inner walls locked and interlocked within these without the use of bolts, screws or rivets.

ADVANTAGES. THE SAFE-CABINET (1913 Model) furnishes the largest measure of protection for its contents with the least bulk and weight. Under actual fire conditions it has been proven to protect its contents intact for forty-nine minutes, thirty of which were at an average temperature in excess of seventeen hundred degrees Fahrenheit.

THE SAFE-CABINET can be moved like any other piece of furniture and is free from the objectionable features of old style safes. It is admirably adapted for modern office buildings, as its interior can be adjusted to suit the requirements of each and every tenant. It is handsome and inexpensive.

SIZES. THE SAFE-CABINET is made in a number of standard sizes, adequately providing for all ordinary requirements.

PATENTS. THE SAFE-CABINET is covered by patents protecting the basic principles of its construction. The name is registered.

UNDERWRITERS' APPROVAL. THE SAFE-CABINET (1913 Model) is approved by the Underwriters' Laboratories.

SPECIFICATION. In order to avoid substitution, specify as follows:—

The fire-resisting filing cabinets used in this building shall be those known as "THE SAFE-CABINET," manufactured by THE SAFE-CABINET COMPANY, INC., of Marietta, Ohio.

CATALOGUES. We will send on request the following catalogues: No. 1, THE SAFE-CABINET; No. 2, THE S-C FILING-UNITS; No. 3, THE S-C BOOK-UNIT, the new sectional bookcase without fixed partitions.

USERS. The United States Government at home and abroad, express companies, railways, office buildings, manufacturers, merchants and professional men, have bought THE SAFE-CABINET in large quantities.

AGENCIES. If you do not find us listed in local telephone directory, write to nearest Canadian agency.

THE STEEL EQUIPMENT CO. LIMITED

OFFICE
UNION BANK BUILDING,
OTTAWA, ONT

FACTORY, PEMBROKE, ONT — AGENTS THROUGHOUT CANADA

PRODUCTS — STEEL OFFICE EQUIPMENT of every description. FILING CABINETS, STEEL FURNITURE, STEEL SHELVING, VAULT FITTINGS, etc.

CONSTRUCTION — Frame work is built up of steel plates strongly held together by heavy steel rods reinforced at all corners with angle braces. Drawers are shaped up in one piece and electrically welded to the fronts.

STEEL DESK

STEEL FILE CABINET

BURGLAR PROOF SAFE

ADVANTAGES. — Modern Fireproof Building Construction demands Office Equipment which prevents interior fires.

Steel Equipment Cabinets cannot burn.

Steel Equipment Cases protect the records which fire insurance cannot restore.

INFORMATION. — Send for "Satisfaction in Steel Equipment," a folder which illustrates our stock cases.

Plans and estimates submitted for special work.

UNION FIBRE COMPANY

MANUFACTURERS OF

SOUND DEADENING, SHEATHING AND INSULATING MATERIALS

RAILROAD SALES OFFICE
1614 GREAT NORTHERN BLDG.,
CHICAGO, ILLINOIS

GENERAL OFFICE
WINONA, MINNESOTA.

FACTORIES
WINONA, MINN.
YORKTOWN, IND.

CANADIAN AGENCIES

PHILIP CAREY COMPANY,
TORONTO, ONT.

PHILIP CAREY COMPANY,
MONTREAL, QUE.

DOUGLAS MILLIGAN, LTD.,
MONTREAL, QUE.

CANADIAN ASPHALT CO., LTD.,
WINNIPEG, MAN.

REFRIGERATION & ENG., LTD.
WINNIPEG, MAN.

WM. N. O'NEIL, CO., LTD.,
VANCOUVER, B.C.

PRODUCTS — Manufacturers of LINOFELT, LITH, UNION CORK BOARD, FIBROFELT and UNION LITH BRINE PIPE COVERING.

FACILITIES — All of these products are manufactured in the largest exclusively insulation factories in the world.

LINOFELT — Linofelt is made of pure flax fibres, unbleached linen thread, stitched between two sheets of extra strong Kraft paper, waterproof paper or asbestos paper, according to specifications.

Linofelt is furnished in two general styles.

The first for sheathing houses, like building paper, and for laying under floors or in partitions to deaden the passage of sound. This style is known as Rettol and Natural Linofelt, and is generally furnished in 36 inch rolls, 66 2/3 feet long. We now manufacture these grades in 48 inch, 32 inch and 16 inch widths, to fit exactly over 16 inch centre studdings, as shown in Fig. 1.

The other style, called Frost Proof Linofelt, to distinguish it from sheathing Linofelt, is furnished in sizes to fit between studdings, with a 2 inch paper lap on each side, to be fastened to the studdings by nailing a lath over it, as shown in Fig. 3. It is cheaper, more efficient, more easily applied than back plaster. By actual test, Linofelt, 1/4 inch thick, is better for excluding cold, heat and sound than 38 sheets of building paper. It is also furnished in 1/2-inch thicknesses, when specified, its efficiency increasing proportionately.

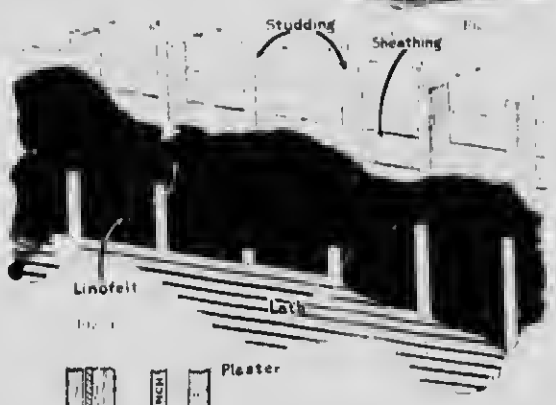


FIG. 2

LITH BOARD. — Lith Board is a combination of flax fibre, rock fibre wool and a waterproofing compound containing within a unit volume the greatest possible number of extremely small air spaces. The chemists of the Company have recently, by an improvement in the process of treating the fibre and with a new waterproofing, augmented the strength and insulating qualities of Lith, until it is now without a superior for insulation work. It has absolutely no capillary attraction; sanitary, can be sawed like lumber, and is used extensively by satisfied customers for cold storage insulation throughout the world. Lith is furnished in boards containing six square feet and from 1/2 inch to 3 inches in thickness.

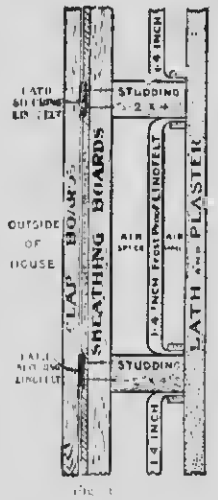


FIG. 3

FIG. 4

UNION CORK BOARD. — Union Cork Board contains two ingredients, pure natural cork granules and a specially prepared asphaltum, making it an ideal cold storage floor insulation. Union Cork Board is furnished in boards containing four square feet and from 1/2 inch to 3 inches in thickness.

FIBROFELT. — Fibrofelt is a board form of insulation, regularly put up in sheets 3 feet by 8 feet, but furnished also in size cut for studdings, when specified.

UNION LITH BRINE PIPE COVERING. — Union Lith Brine Pipe Covering is being used extensively where a perfect regular, heavy or air water covering is demanded.

SAMPLES, PRICES AND CATALOGUES. — We will cheerfully furnish samples, prices and catalogues showing our various materials and methods recommended by us for application. Inquiries referred to any of our Canadian agencies will receive prompt and careful attention. Correspondence solicited.

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

TORONTO MONTREAL WINNIPEG VANCOUVER

COLD STORAGE INSULATION

PRODUCTS — J-M PURE CORK SHEETS, J-M IMPREGNATED CORKBOARD

Also, J-M GRANULATED CORK, J-M HAIR FELT, J-M MINERAL WOOL, J-M WEATHER TITE PAPER, KEYSTONE HAIR INSULATOR

J-M PURE CORK SHEETS.

By our process of manufacturing J-M Pure Cork Sheets, the properties of the cork are retained in the finished product.

The pure cork is ground, slightly compressed in moulds, and heated to a temperature sufficient to liberate the natural gum. When cooling, this gum binds the particles together, forming a reconstructed sheet of pure cork.

Advantages. J-M Pure Cork Sheets are the best commercial non-conductors of heat known. They are unaffected by moisture, and retard the progress of fire.

METHOD OF APPLICATION OF J-M SHEET CORK INSULATION TO BRICK WALL

J-M IMPREGNATED CORKBOARD.

Next in insulating efficiency is J-M Impregnated Corkboard. This is made of granulated cork moulded under pressure with an asphaltic binder. It possesses much of the insulating properties peculiar to cork, has good structural strength, and, being absolutely waterproof, is well suited to locations subjected to excessive moisture, such as floors of ice storage rooms, brewery cellars, under brine and freezing tanks, etc.

SIZES.

J-M Pure Cork Sheets and J-M Impregnated Corkboard are made 12 inches by 36 inches, and 1 inch, 1½ inches, 2 inches, and 3 inches in thickness.

SERVICES.

We are prepared to furnish and install insulation for all classes of cold storage work.

Our refrigerating engineers and cold storage experts are always glad to offer free to architects their suggestions for the most efficient method of insulating any type of cold-storage building.

J-M VITRIBESTOS LININGS.

Smoke Stack Lining. Made of pure Asbestos (vitrified), this material is perfectly incombustible, and protects smoke stacks from the destructive action of sulphurous or other gases of combustion. Forms a durable, thin, light lining, firmly attached to the stack, only 2 in. thick, which keeps the outside of the steel stack cool, while the inside, having no exposed iron parts, presents a solid surface, impervious to moisture and absolutely unaffected by sulphurous or other gases of combustion. Two inches of J-M Vitribestos offers more protection than 5 in. of fire-brick; this means 15% more flue space and a lighter stack than would be possible with fire-brick.

For Breeching. Pipes and conduits conveying hot air, either for blast purposes, as in bustle pipes, or in the connections of boiler to smoke-stack, known as "breechings," to prevent the injurious action of gases, must be lined. J-M Vitribestos Lining is the ideal material. It is held in place by bolts, for which holes are punched into the breeching 18 in. square, between centres. Almost indispensable is this J-M Vitribestos Lining for the top arches of such conduits. The large slabs (3 ft. x 6 ft.) have few joints, and are easily tightened by J-M Vitribestos Cement. They are held in place by ¼ in. or ⅜ in. bolts, with washers and nuts. In ordinary FLAT BREECHINGS the top is punched with ⅜ in. punch holes, laid out in squares with 18 in. distances, centre to centre, the sides with one or two rows, 18 in. apart in the row, 6 in. from top and from bottom; the bottom requires only a few punch holes, 36 in. x 36 in., between centres, arranged in squares. In Arched Breechings the entire surface is panelled into squares, 18 in. x 18 in. by ⅜ in. punch holes at the corners of the squares.

THE STANDARD PAINT CO. OF CANADA, LIMITED

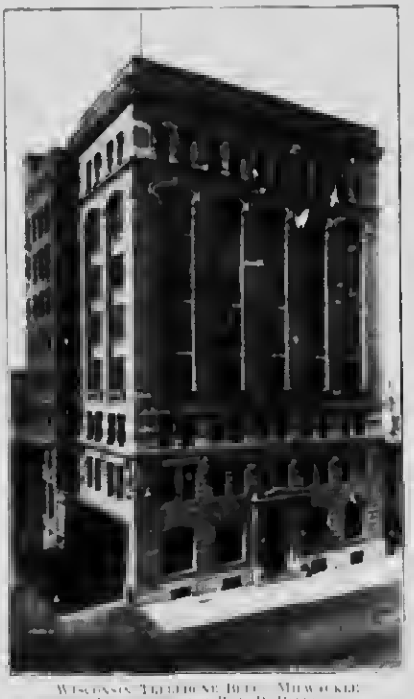
32 Victoria Square,
MONTREAL

Sales Offices and Warehouses
Winnipeg Vancouver Calgary
Factory Highlands, Lachine Canal, Montreal

PRODUCTS — We manufacture INSULATING PAPERS, DAMP ROOFING PAINTS, RUBBER OID ROOFING, Etc. For full list of our products, see page 70-73

"GIANT" PAPER — Built *saturated and coated* with P. & B. Compound. The highest grade of insulating paper made. Absolutely waterproof, air tight, acid and alkali resisting. Used for sheathing dwellings and insulating cold storage warehouses, packing houses, refrigerator cars, etc. Made in the following weights:

1 ply, weighing 45 lbs. per 1,000 square feet
2 ply, weighing 60 lbs. per 1,000 square feet
3 ply, weighing 80 lbs. per 1,000 square feet
4 ply, weighing 100 lbs. per 1,000 square feet.



Wisconsin Telephone Bldg., Milwaukee
Insulated with P. & B. Paper

"P. & B." PAPER. — This paper is *coated only*, and is used for certain kinds of refrigerator work where the thickness of the paper is of principal importance. Made in the following weights:

1 ply, weighing 35 lbs. per 1,000 square feet.
2 ply, weighing 45 lbs. per 1,000 square feet.
3 ply, weighing 55 lbs. per 1,000 square feet.
4 ply, weighing 70 lbs. per 1,000 square feet.

"HERCULES" PAPER. — This paper is *saturated only*, and is adapted for the same general purposes as "Giant," but recommended where a coated paper would prove objectionable, as, for example, in the manufacture of felt insulation, etc. Manufactured in the following weights:

1 ply, weighing 35 lbs. per 1,000 square feet.
2 ply, weighing 45 lbs. per 1,000 square feet.
3 ply, weighing 55 lbs. per 1,000 square feet.
4 ply, weighing 75 lbs. per 1,000 square feet.

"DURO" PAPER. — Made in two styles, Saturated and Single coated. Put up in rolls 36 in. wide, containing 400 square feet. Average shipping weight:

Saturated	35 lbs.
Single coated	45 lbs.

A high-grade sulphate paper stock. Either saturated or coated with P. & B. Compound. It is of unusually high tensile strength. Also vermin-proof.

WRAPPING PAPER. — "A" Grade, Single-coated. Clean, odourless, moisture-proof, no tar, no oil. Will prevent tarnishing of pianos, furniture, silverware and hardware in transportation. An absolute protection against dampness, salt air or fumes. About 4½ square yards to the pound. Put up in rolls 36 in. wide.

"DOMINION" IMPERVIOUS SHEATHING. — Manufactured of highest grade pure sulphate wood pulp stock, the finished material being of an extremely attractive creamy white colour. Put up in rolls 36 in. wide, containing 400 square feet; also in rolls 72 in. wide, containing 800 square feet.

"DOMINION" DRY SULPHATE PAPER. — Made of best quality sulphate wood pulp stock. Extremely high in tensile strength. Put up in rolls 36 in. wide, containing 400 square feet.

THE KINNEAR MANUFACTURING COMPANY

MANUFACTURERS OF

STEEL ROLLING DOORS, SHUTTERS AND PARTITIONS,

COLUMBUS, OHIO, U.S.A.

CANADIAN AGENCIES:

MUSSENS LIMITED. HEAD OFFICE: 318 ST. JAMES ST., MONTREAL.

BRANCH OFFICES, TORONTO, WINNIPEG, CALGARY, COBALT.

FOR BRITISH COLUMBIA. WM. N. D'NEIL CO., 550 SEYMOUR STREET, VANCOUVER.

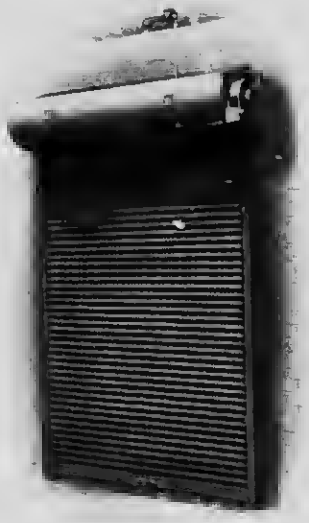
PRODUCTS. STEEL ROLLING DOORS, SHUTTERS AND PARTITIONS.

IMPROVED CONSTRUCTION. We are constantly making improvements. A department is devoted exclusively to developments and designing. The following are but a few of the many constructions we are prepared to furnish. We invite correspondence relative to special or unusual requirements.

FIRE PROTECTION. Our Steel Rolling Doors and Shutters are built entirely of steel. They are one of the best types of fire retardents for the protection of window exposures on alleys and light courts, for elevator shaft openings and in many similar situations for buildings of all classes. We are prepared to supply specially constructed doors sold under the trade name of "Abacus." They are included in the approved list issued by the National Board of Fire Underwriters, and are inspected and labelled under the supervision of the Underwriters' Laboratories, Inc.

INSTALLATION. Any good mechanic can erect our material. Blue prints and instructions accompany every shipment, showing the application and the method of erection.

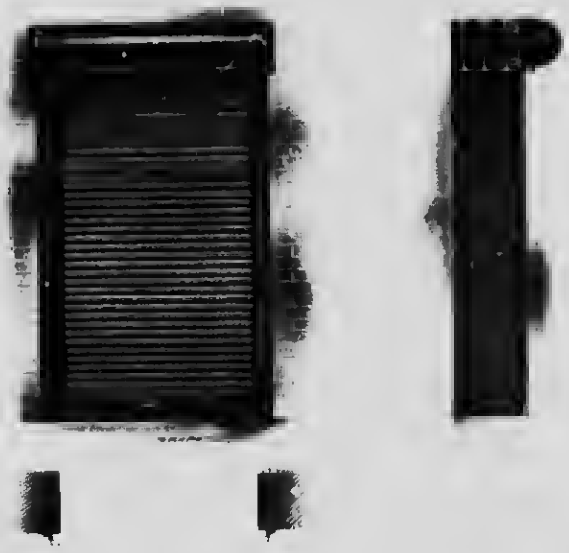
ABACUS NO. 4



ABACUS NO. 6

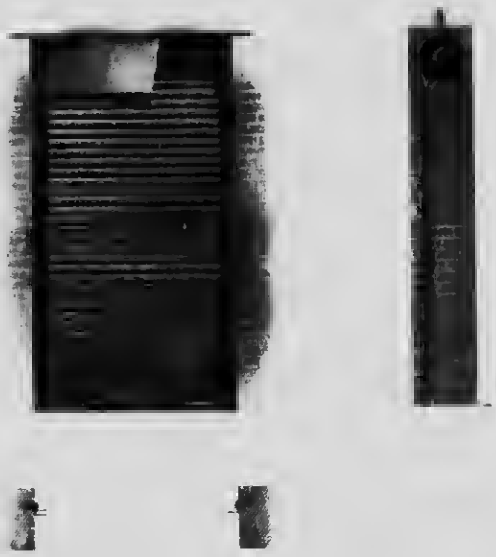
The National Board of Fire Underwriters has approved KINNEAR STEEL ROLLING SHUTTERS for openings in exterior walls, division walls and elevator and stairway shafts. As their specifications vary, it is necessary to know the class of opening for which shutters are desired.

CONTINUED ON NEXT PAGE



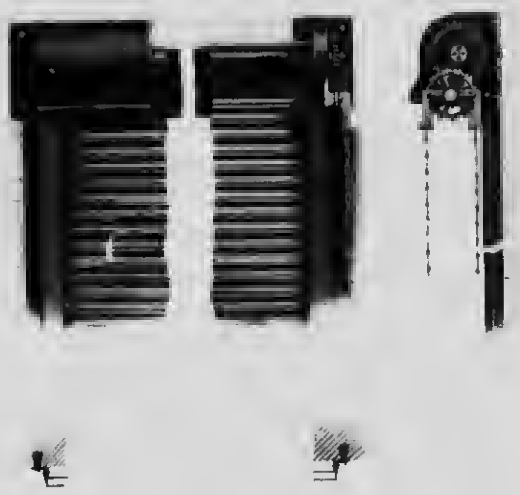
CONSTRUCTION NO. [illegible]

Doors overlap the opening at sides and top. Coil and grooves are placed on face of wall. Door is counterbalanced by springs and operated by means of handle in bottom bar.



CONSTRUCTION NO. B.M. 10

Grooves and coil are placed between jambs. The door is counterbalanced by springs and operated by means of handle placed in bottom bar. Coil is enclosed in a plain galvanized hood. For special requirements this can be ornamented if desired.



CONSTRUCTION NO. F.H. 20

Grooves and coil are placed on face of wall. Door is counterbalanced by springs and operated by means of endless chain, sprocket and gear. When used as a fire door it can, if required, be equipped with an automatic closing device. Special designs will be furnished on application.

CONSTRUCTION NO. B.H. 20

Coil and grooves are placed between jambs. Door is counterbalanced by springs and operated by endless chain and gear. Coil is enclosed in plain galvanized hood. Modifications of this design can be furnished.

WINNIPEG CEILING & ROOFING CO., LIMITED

WINNIPEG, MAN.

PRODUCTS.

WINDOWS. We manufacture a complete line of FIREPROOF WINDOWS of the following types: All Stationary, Half Stationary and Half Fixed, Half Stationary and Half Sliding, and Double Sliding. We have been manufacturing Windows during the past nine years, and our Windows are all made according to Underwriters' requirements.

DOORS. We also manufacture a complete line of FIREPROOF DOORS, including Standard Tin-Clad Doors, Drawn Metal and Corrugated Elevator Doors.

KALAMEINED DOORS.

Our Drawn Door, Style No. 1, in Kalameined Iron, is sold in competition with oak doors. Being fireproof, the artistic appearance of the doors, mouldings, etc., the many different designs we can produce, make them in every way superior to the hardwood doors, and with the exception of copper doors they cost no more; they will not swell, shrink or warp, being impervious to the weather. The Copper or Kalameined Iron is drawn on the wood on a powerful drawbench, through steel dies, fastening it firmly to the woodwork without screws or nails, and we feel confident that architects, contractors and the public, when they have once seen our goods, will recognize the immense advantage to be derived in using these goods in preference to hardwood doors, mouldings, etc.

ELEVATOR DOORS (CORRUGATED).

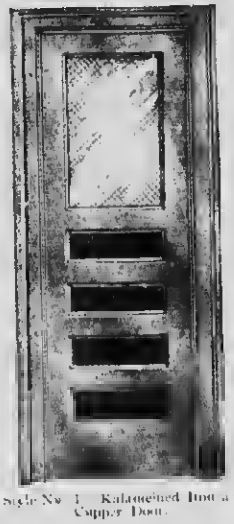
Doors hung in the manner shown, inside elevator shaft, are the most satisfactory that can be used for this purpose, and acceptable to the Fire Underwriters.

The manner of operating is simple. Being made in two parts, the lower half counterbalances the top, so that raising the lever handle unlocks the door and permits them to slide (the top half up and the bottom half downward) in the track on either side of opening.

They do away with the necessity of guards at openings, and acting as a fire retardent, reduce insurance rates.

Sliding Sash

Corrugated Elevator Fire Door.



Style No. 1. Kalameined Iron and Copper Door.

SHEET METAL BUILDING MATERIALS. We have the only factory in Western Canada manufacturing Metal Ceilings, Roofing and Siding, and will be pleased to send upon request our catalogue illustrating the various lines we make.

ESTIMATES.

We will be pleased to furnish estimates on request, and, when shipping, we furnish full drawings and information, making installations easy.

THE A. B. ORMSBY COMPANY, LIMITED

TORONTO. ASSOCIATED WITH WINNIPEG.

THE METAL SHINGLE & SIDING CO., LIMITED,
PRESTON, MONTREAL, SASKATOON, CALGARY, REGINA, EDMONTON.

VAN KANNEL PANIC-PROOF REVOLVING DOORS.

We now have exclusive manufacturing rights for this door in Canada and are equipped to give the best delivery.

Van Kannel Revolving Doors speak volumes as a money-maker for all users.

At all times they protect health by excluding the varying elements and maintaining an even temperature.

NOTE. Van Kannel Revolving Doors are the very best coal economizers ever devised.

Knowledge of above essentials will prompt all owners and lessees of buildings to insist on the Best Van Kannel Revolving Doors.

Always closed, yet always open, Van Kannel Revolving Doors regulate traffic with greater capacity than any other door system.

Noiseless in action, Van Kannel Revolving Doors exclude all noise.

No other existing type of door equals Van Kannel Revolving Door in convenience, adaptability and safety.

Every set of Van Kannel Revolving Doors is thoroughly constructed in a most workmanlike manner, using only the best of material. They revolve easily, collapse easily, move to side of vestibule easily.

LAST. Van Kannel Revolving Doors are manufactured in many types and styles. They are the most useful, greatest saving device and greatest safety device of modern building construction.

UNDERWRITERS' FIRE DOORS.

Ormsby Underwriters' Fire Doors are inspected and labelled under supervision of the Underwriters' Laboratories.

Doors are fitted with special Fire-Door Hardware.

Absolute fire protection for factory openings.

Doors made for every purpose.

Special catalogue issued.

ORMSBY ROLLING STEEL DOORS, SHUTTERS OR CURTAINS.

We are now prepared to manufacture Rolling Steel Doors in Canada under improved Kinnear Patents.

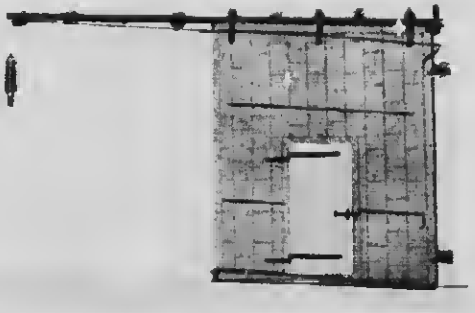
The construction is entirely of steel and is absolutely fireproof.

Shutters may be used in freight houses, warehouses, train sheds, shipping platforms, docks, car barns, dry kilns, in exterior window openings as an added protection, or in any opening requiring protection against fire.

The Shutter is closed automatically at 160 deg. by the release of a fusible link. Fire cannot travel through the closed shutter.

REVOLVING DOOR.

ROLLING STEEL DOOR.



FIRE DOOR.

VARIETY MANUFACTURING COMPANY

MANUFACTURERS OF ALL KINDS OF FIREPROOF DOORS.

SACRAMENTO AND CARROLL AVENUES,
CHICAGO, ILL.

AGENTS, CANADA

CALGARY, ALBERTA.
CANADIAN EQUIPMENT AND SUPPLY CO.,
514 ELEVENTH AVENUE WEST.

MONTREAL, QUE.:
JAMES WALKER HARDWARE CO.,
252 ST. JAMES STREET.

VANCOUVER, B.C.
JOHN SUTHERLAND,
528 PENDER ST. WEST.

WINNIPEG, MAN.:
W. T. GROSE,
1015 ELECTRIC RAILWAY CHAMBER.

PRODUCTS. CROSS HORIZONTAL FOLDING DOORS, VAMANCO FREIGHT ELEVATOR DOORS, VARCLAD FREIGHT ELEVATOR DOORS, STEEL ROLLING DOORS AND SHUTTERS, UNDERWRITERS' IRON FIRE DOORS, ART METAL DOORS AND FRAMES, SEMI-ART METAL DOORS AND FRAMES, TIN-CLAD FIRE DOORS (all kinds), HARDWARE FOR ALL FIRE DOORS, BLACKSMITH AND WROUGHT IRON WORK, CONTRACTORS FOR LIGHT STRUCTURAL WORK.

APPROVAL. Many of the above doors carry the Label of Approval of the Underwriters' Laboratories of the National Board of Fire Underwriters. We have a department devoted exclusively to improvements in design and manufacture.

CROSS HORIZONTAL FOLDING DOORS. For use in garages, railway freight houses, car shops, warehouses, docks, power plants, etc. *Advantages.* Simple; easily operated. Made of any material or combination of materials. No limit to size or weight. Glass, installed in upper panel, takes place of transom. Entire mechanism in full view. Can be repaired by any mechanic. Cost of maintenance practically nothing. Occupy no valuable space, either open or closed.

INSTALLATION OF 48 CROSS HORIZONTAL FOLDING DOORS, MORRIS FREIGHT HOUSE, LOUISVILLE, KY.
Doors are clear of floor, affording free space for the handling of goods

One Door partially open, other closed. Glass in upper half takes place of transom

Doors fully opened, and easily, though Automobile is near. No valuable space occupied either opened or closed.

GARAGE EQUIPPED WITH CROSS HORIZONTAL FOLDING DOORS.

CONTINUED ON NEXT PAGE

STEEL ROLLING DOORS AND SHUTTERS.

Our Steel Rolling Doors and Shutters are made entirely of steel. They are composed of steel interlocking slats that coil above opening, being counterbalanced by springs. End of slats travel up and down in grooves bolted at each side of opening.

Installation. Doors are placed to coil above the opening or under the lintel. They require 3 inch to 5 inch side room and 15 inch head room for openings 12 feet 0 inches high or less, and 1 inch head room additional per foot of height above this.

Operation. Doors may be operated by hoist, gearing, or simply by hand, to suit any conditions. If used as fire doors, they can be equipped with automatic closing device, when specified.

Advantages. These doors are classed among the best fire retardants for window, door, partition, elevator shaft, and fire wall openings. They are neat in appearance, occupy very little room, and, if properly cared for, will last for years. Doors are easily erected. Blue prints and instructions are sent with each shipment.

Approval. Our doors and shutters are included in the approved list issued by the National Board of Fire Underwriters, and are regularly inspected and labelled by the Underwriters' Laboratories, Inc.

Illustrations. The illustrations, herewith, show only a few of our many installations and constructions. We shall be pleased to furnish information for special requirements.

Flanged Side of No. 2 Interlocking Slat

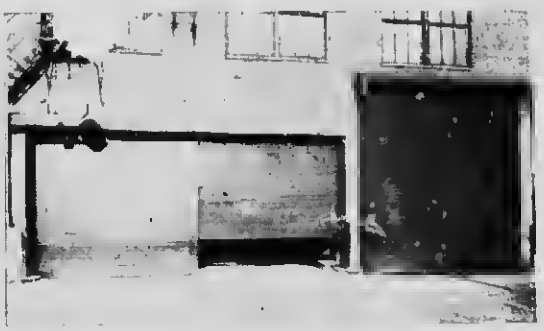
Two-fifths full size

Smooth Side of No. 2 Interlocking Slat.

Line of Rolling Doors on Street Roller Bers.
Total, 24 doors, each 11' 0" wide by 18' 0" high

The above slats are rolled channel shaped, affording greatest strength with least material, and have a close right joint that is practically smoke, fire, and weather proof. Ends of slat are reinforced with end lock, which prevents longitudinal separation, takes the wear, and reduces friction in grooves. Note that either side of slat shuts water. No. 2 slats are constructed of No. 20 or 22 gauge steel, either galvanized or black, and No. 1 a one inch slat, of No. 16 or 18 gauge steel.

Two Rolling Doors, 24' 0" Wide by 16' 0" High, Placed Under Lintel and Operated Inside of Building.



Three Rolling Doors This Opening

One door, 12' 0" wide by 18' 0" high operated on outside of building. Two doors, 13' 0" wide by 14' 0" high, placed and operated inside building, have impost pilaster at centre, which can be swung up, giving clear opening 40' 0" wide.

CONTINUED ON NEXT PAGE

VAMANCO AND VARCLAD ELEVATOR DOORS.

Our Vamanco Counterbalanced Doors (Patented) are *all-steel fire doors* for freight elevator shafts.

Our Varclad Elevator Doors are counterbalanced *tin-clad fire doors* for freight elevator shafts.

They are approved and labelled by the Underwriters' Laboratories of the National Board of Fire Underwriters.

(FACSIMILE OF UNDERWRITERS' LABEL)

UNDERWRITERS' LABORATORIES, INC.
INSPECTED
FIRE DOOR FOR OPENING IN VERTICAL SHAFT
NO. 8 [redacted]

GENERAL DESCRIPTION.

Construction.—Door is mounted in guides secured to inner face of the wall of the elevator shaft, and operates up and down in small space between elevator car and wall. It is made in two parts, or panels, connected with steel chains, which travel over ball-bearing sheaves housed in steel brackets that are bolted to the guides. Each panel of Vamanco Door is corrugated sheet steel, riveted to an angle frame, the frame being reinforced with special shaped vertical channels. Each panel of Varclad Door is wood, tin-clad, mounted in a frame of steel angles.

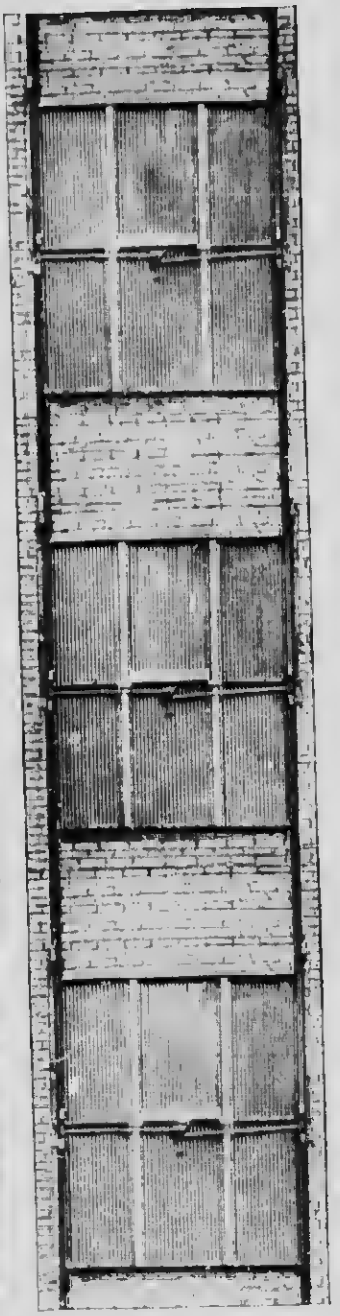
Guides.—These are built of heavy steel angles mounted on face of wall inside shaft, one at each side of opening, where they are secured by through bolts.

Latch.—The latch is placed on inside of door, and it automatically engages catches on guides when door is closed. Door cannot be opened from floor side, making accidents impossible.

Operation.—The operation is manual from elevator *car only*. In opening, top panel moves up and lower panel down. Since the two panels are connected by chains, the weight of one panel is counterbalanced by the other, eliminating springs or counterweights. Slight friction of moving parts is the only resistance to be overcome in operating.

VAMANCO DOOR IN OPEN POSITION, SHAFT SIDE.

Note top of lower panel is flush with sill, affording smooth surface for trucking. Trucking angles shown at each corner resting on sill



LINE OF VAMANCO DOORS IN ELEVATOR SHAFT, ALL CLOSED.

Guides are continuous from top to bottom, making erection easy

FLOOR HEIGHTS REQUIRED FOR VAMANCO ELEVATOR DOORS.

Height of Door Opening		Distance, Floor to Floor	
ft.	in.	ft.	in.
5	11	8	2
5	3	8	6½
5	6	8	11
5	9	9	3½
6	11	9	8
6	3	10	0½
6	6	10	5
6	9	10	9½
7	11	11	2
7	1	11	6½
7	11	11	11
7	9	12	3½
8	0	12	8
8	3	13	0½
8	6	13	5
8	9	13	9½
9	11	14	2

Details.—All doors lap over 3½ inches above and below opening.

Distance between floors must equal 1½ times height of opening plus 8 inches

Explanation. For an opening 7 feet high, add 3 feet 6 inches; then add 8 inches, which equals 11 feet 2 inches, distance between floors.

Space required at sides of opening for guides is 5 inches.

Sills furnished only when specified

CONTINUED ON NEXT PAGE

GENERAL DESCRIPTION CON.

Automatic Closing Device.— When it is specially ordered, this door can be equipped with an automatic device that will close the door as the car leaves the floor. This will keep the shaft closed at all times, regardless of the elevator operator, thus protecting the shaft against fire and guarding against injury to persons on floor side.

Trucking Device.—This device engages sill when door is open, and spans the small space between the elevator car floor and sill. It receives and sustains any jar or shock of passing trucks, making it possible to take trucks on or off the car, with load of any size.

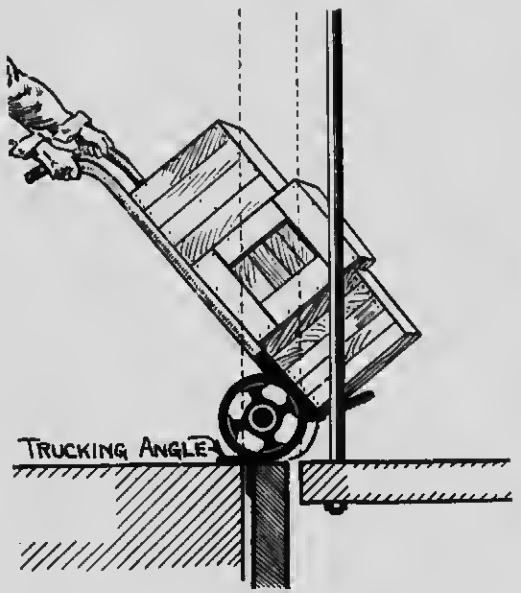
Advantages of Vamanco and Varclad Doors.—Obtain lowest insurance rate. Simply constructed; easily operated; erection or repairs done by any good mechanic. Not expensive. Have no springs or counterweights. Occupy but small space in shaft. A safety gate and fireproof door combined. Automatic feature insures closed shaft at all times. Absolutely fireproof.

Catalogue.—Send for our Vamanco Catalogue "B" and Varclad Catalogue "C," which fully describe these doors.

FLOOR HEIGHTS REQUIRED FOR VARCLAD ELEVATOR DOORS.

Height of Door Opening	Distance, Floor to Floor
ft in	ft in
5 6	8 1*
5 9	9 3
6 0	9 7
6 3	10 0
6 6	10 4
6 9	10 9
7 0	11 1
7 3	11 6
7 6	11 10
7 9	12 3
8 0	12 7
8 3	13 0
8 6	13 4
8 9	13 9
9 0	14 1

* 7 inches allowed for clearance.



TRUCKING ANGLE SHOWN SUPPORTING DOOR

TRUCKING ANGLE.

The view above illustrates value of trucking angle, which supports door directly from sill independently of guides. This relieves the guides of any jar that would displace or loosen them by trucking over door. Door is held flush with sill, giving smooth surface to truck over and preventing noise, spilling of load, etc.

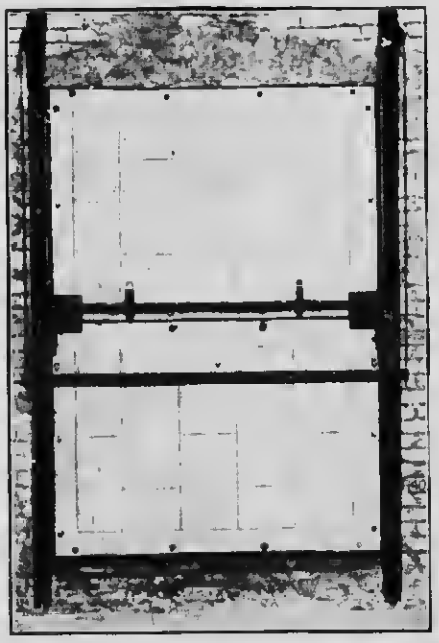
NOTE.—Angle is short length at each side of door, and so does not interfere with smooth passage of trucks. However, if unusual strength is desired, angle may run across entire opening, sill being recessed to receive it.

VARCLAD ELEVATOR DOOR INSTALLED.

Meeting line at centre is covered by an astragal strip, so that door cannot be forced open. Trucking angles that support door when open are shown at each side in the centre.

Detail.—All doors lap opening 4 inches above and 2 inches below opening, and occupy 4½ inches in shaft. 1 inch or 1½ inches should be allowed for clearance of elevator car.

Distance between doors must equal 1½ times height of opening plus 7 inches. See table, "Floor Heights Required for Varclad Elevator Doors." Space required at sides of opening for guides is 6 inches. Sill furnished only when specified.



VARCLAD DOOR, ELEVATOR SIDE.

Latch is placed on upper panel, and worked entirely by gravity

JAS. G. WILSON MFG. CO.

MANUFACTURERS OF SPECIAL PROTECTIVE ROLLING DOORS AND SHUTTERS.

332 So. Michigan Avenue, CHICAGO, ILL. | 1 West 29th Street, NEW YORK, U. S. A. | Factory, NORFOLK, VA.

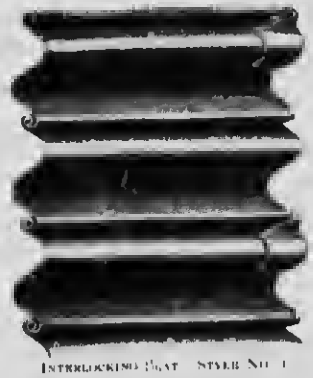
PRODUCTS. ROLLING DOORS AND SHUTTERS of Steel or Wood; "SALAMANDER" ROLLING SHUTTERS AND SWING SLIDING DOORS.

DESCRIPTION. We make three styles of Steel Rolling Doors and Shutters as shown and described herewith. These different styles are made of various gauges of STEEL according to the purposes required and sizes of openings to be covered. They are operated in a variety of ways: some simply push up and pull down, like a roller shade; some are worked by a winch with gear or chain-hoist, and others with heavy gear or electric motors.

There have been thousands of our Rolling Doors installed in the past 35 years, some as large as 35 feet by 20 feet, and even up to 107 feet high, and we can refer to them.

On special problems involving the closing of any kind or size of openings with Rolling Doors, communicate with us.

WILSON'S DOUBLE EDGED CORRUGATED



INTERLOCKING SLAT STYLE NO. 1

INTERLOCKING SLAT STYLE NO. 2.

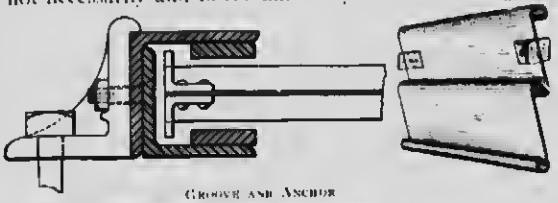
WILSON'S CORRUGATED STEEL ROLLING DOORS. Are designed so that every part and crevice can receive its coat of paint without trouble or difficulty. These Steel Rolling Doors will stand a good deal of knocking about, and a few dents or buckles will not interfere with their operation. Any large hole can be patched in a few hours.

SPECIFY WILSON'S DOUBLE-EDGED CORRUGATED STEEL ROLLING DOORS AND SHUTTERS.

WILSON'S INTERLOCKING-SLAT ROLLING DOORS AND SHUTTERS. STYLE NO. 1—As shown, are designed to secure the maximum of lateral strength and resistance to wind pressure. A square foot of slats contains two square feet of steel disposed so as to avoid all sharp bends, thereby adding greatly to the durability of the door. All slats of this style are of 22 U.S. gauge. Increasing the thickness of the steel does not necessarily add to the durability or lateral strength of the door. THE SHAPE OF THE SLAT HAS VERY MUCH TO DO WITH THIS, and should be considered, as well as the gauge, when specifying.

Our Fire Doors are approved for use in the most hazardous places, such as elevator and staircase openings.

STYLE NO. 2—As shown, is designed for extremely wide openings. The large rounded hooks give it great lateral strength and are shaped so as to provide a clear space between the outer and inner hook, so that a violent blow from the outside sufficient to indent the outer hook would not penetrate to the inner hook and cause a stiff joint.



GROOVE AND ANCHOR

NEW ANCHOR DEVICE. These anchors, as shown, are placed on each side of the door, two or three feet apart, and are most effectual in preventing the door being blown out by the wind in a heavy gale. They obviate the very deep grooves necessary for this purpose a practice obviously objectionable. We make our No. 2 Slat in 20, 18 and 16 U.S. gauge.

WILSON'S ROLLING WOOD DOORS. Have the slats held together in close contact at all times, and proper provision is made for their swelling or shrinking from *atmospheric changes*. This action *is automatic* and *perfect*. A Rolling Wood Door constructed in any other way will prove unsatisfactory.

B & O. ROUND HOUSE AT BALTIMORE, MD. Equipped with Wilson's Rolling Wood Doors, fitted with wire glass panels and wicket doors

The latest improvement in Round House Doors is the introduction of wire glass light panels. For detail of construction, see pages 32 and 33 in large Catalogue.

A special feature in our Round House Door is the Safety Wicket. This coils up with the door and has many obvious advantages over a door on hinges. For detail of construction see page 32 in large Catalogue.

Our Engineer's Handbook and our Standard Detail Sheets on Rolling Doors and Shutters mailed free on request.

For our WOOD ROLLING PARTITIONS AND WARDROBES see our advertisement on page 84.
For our VENETIAN BLINDS AND AWNINGS see our advertisement on page 217.

CHICAGO BRIDGE & IRON WORKS

CANADIAN PLANT:

BRIDGEBURG, ONTARIO, CANADA.

OFFICES
BRIDGEBURG, ONTARIO 111 JANET STREET
CHICAGO, ILLINOIS 105TH & THROOP STREETS.

SHOPS
BRIDGEBURG, ONTARIO.
GREENVILLE, PA. (PITTSBURG DISTRICT)
CHICAGO, ILLINOIS

PRODUCTS. We specialize in the design, manufacture and erection of ELEVATED STEEL TANKS and STANDPIPES for Sprinkler, Municipal and Railway Service.

STEEL TANKS. Our Steel Tanks have the following meritorious features:

DURABILITY. Great strength, long life, low maintenance cost and pleasing appearance.

STABILITY. Will not rot, burst or burn, and will remain absolutely water-tight.

INSPECTION. All surfaces, both inside and out, are open for inspection, and are easily accessible for painting.

CONSTRUCTION. Built entirely of steel, and will, therefore, last indefinitely.

COST. Cost approximately the same as a wooden tank with a steel substructure.

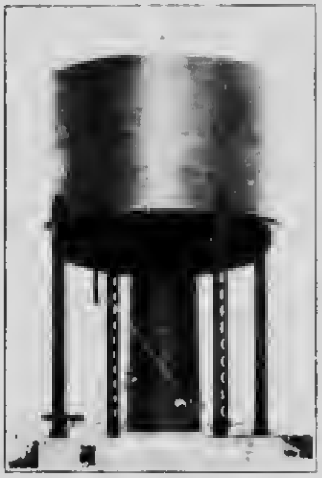
SIZES. Built of any capacity or height desired

INQUIRIES. We solicit your inquiries for estimates, plans and specifications.

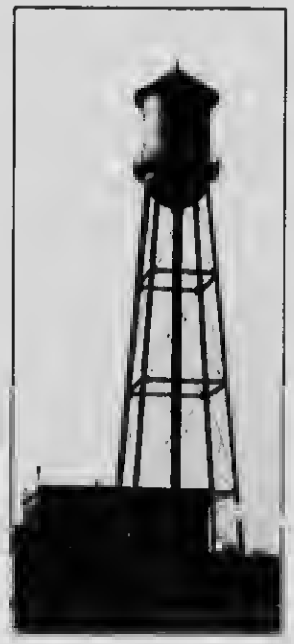
DELIVERIES. We carry a large stock of material for standard sized tanks at our **Bridgeburg** shop, and can therefore make very prompt deliveries.

Upon request, we will be pleased to mail you a copy of our latest **Canadian catalogue, No. 11.**

SPRINKLER TANK ON ROOF OF BUILDING.
Capacity, 50,000 gallons
Height, 30 ft. to bottom



STEEL RAILWAY TANK, GRAND TRUNK PACIFIC RAILWAY
Capacity, 50,000 gallons
Height, 15 ft. to bottom



SPRINKLER SYSTEM,
GOLDIE & McCULLOCH CO., LTD.
Capacity, 50,000 gallons.
Height, 88 ft. 6 in. to bottom.

CITY WATER WORKS,
FORT FRANCES, ONTARIO.
Capacity, 100,000 gallons.
Height, 81 ft. to bottom.